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2010
EDITION

CO₂ EMISSIONS FROM FUEL COMBUSTION



International
Energy Agency

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2010
EDITION

CO₂ EMISSIONS FROM FUEL COMBUSTION

In recognition of fundamental changes in the way governments approach energy-related environmental issues, the IEA has prepared this publication on CO₂ emissions from fuel combustion. This annual publication was first published in 1997 and has become an essential tool for analysts and policy makers in many international fora such as the Conference of the Parties.

The sixteenth session of the Conference of the Parties to the Climate Change Convention (COP 16), in conjunction with the sixth meeting of the Parties to the Kyoto Protocol (CMP 6), will be meeting in Cancún Mexico from 29 November to 10 December 2010.

The data in this book are designed to assist in understanding the evolution of the emissions of CO₂ from 1971 to 2008 for more than 140 countries and regions by sector and by fuel. Emissions were calculated using IEA energy databases and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

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**CO₂ EMISSIONS
FROM FUEL COMBUSTION**

INTERNATIONAL ENERGY AGENCY

The International Energy Agency (IEA), an autonomous agency, was established in November 1974. Its mandate is two-fold: to promote energy security amongst its member countries through collective response to physical disruptions in oil supply and to advise member countries on sound energy policy.

The IEA carries out a comprehensive programme of energy co-operation among 28 advanced economies, each of which is obliged to hold oil stocks equivalent to 90 days of its net imports.

The Agency aims to:

- Secure member countries' access to reliable and ample supplies of all forms of energy; in particular, through maintaining effective emergency response capabilities in case of oil supply disruptions.
- Promote sustainable energy policies that spur economic growth and environmental protection in a global context – particularly in terms of reducing greenhouse-gas emissions that contribute to climate change.
- Improve transparency of international markets through collection and analysis of energy data.
- Support global collaboration on energy technology to secure future energy supplies and mitigate their environmental impact, including through improved energy efficiency and development and deployment of low-carbon technologies.
- Find solutions to global energy challenges through engagement and dialogue with non-member countries, industry, international organisations and other stakeholders.

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International
Energy Agency

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FOREWORD

Recent years have witnessed a fundamental change in the way governments approach energy-related environmental issues. Promoting sustainable development and combating climate change have become integral aspects of energy planning, analysis and policy making in many countries, including all IEA member states.

In recognition of the importance attached to the environmental aspects of energy, the IEA Secretariat has prepared this edition of its published statistics on CO₂ emissions from fossil-fuel combustion. These data are also available on CD-ROM and on the Internet.

The purpose of this volume is to put our best and most current information in the hands of those who need it, including in particular the participants in the UNFCCC process. The IEA Secretariat is a contributor to the official Intergovernmental Panel on Climate Change (IPCC) methodologies for estimating greenhouse-gas emissions. The IEA's basic energy balance data are the figures most often cited in the field. For these reasons, we felt it appropriate to publish this information in a comprehensive form.

It is our hope that this book will assist the reader in better understanding the evolution of CO₂ emissions from fuel combustion from 1971 to 2008 for more than 140 countries and regions, by sector and by fuel. This publication incorporates comments and suggestions received since the first edition in November 1997.

Most of the data presented in this publication are only for energy-related CO₂. Thus they may differ from countries' official submissions of emissions inventories to the UNFCCC Secretariat.

In addition, summary data for CO₂ from non-energy-related sources and gas flaring, and emissions of CH₄, N₂O, HFC, PFC and SF₆ are shown in Part III in cooperation with the Netherlands Environmental Assessment Agency (PBL) and the Joint Research Centre (JRC).

The publication also includes information on "Key Sources" from fuel combustion, as developed in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*.

This report is published under my responsibility as Executive Director of the IEA and does not necessarily reflect the views of IEA member countries.

Nobuo Tanaka
Executive Director

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Kyoto Protocol base years

The year 1990 should be the base year for the estimation and reporting of inventories. According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, the following Annex I Parties that are undergoing the process of transition to a market economy, are allowed to use a base year or a period of years other than 1990, as follows:

Bulgaria:	to use 1988
Hungary:	to use the average of the years 1985 to 1987
Poland:	to use 1988
Romania:	to use 1989
Slovenia:	to use 1986

ABBREVIATIONS

Btu:	British thermal unit
GJ:	gigajoule
Gt C:	gigatonnes of carbon
GWh:	gigawatt hour
J:	joule
kcal:	kilocalorie
kg:	kilogramme
kt:	thousand tonnes
ktoe:	thousand tonnes of oil equivalent
kWh:	kilowatt hour
MJ:	megajoule
Mt:	million tonnes
Mtoe:	million tonnes of oil equivalent
m ³ :	cubic metre
PJ:	petajoule
t:	metric ton = tonne = 1 000 kg
t C:	tonne of carbon
Tcal:	teracalorie
TJ:	terajoule
toe:	tonne of oil equivalent = 10 ⁷ kcal
CEF:	carbon emission factor
CHP:	combined heat and power
GCV:	gross calorific value
GDP:	gross domestic product
HHV:	higher heating value = GCV
LHV:	lower heating value = NCV
NCV:	net calorific value
PPP:	purchasing power parity
TPES:	total primary energy supply
AGBM:	Ad Hoc Group on the Berlin Mandate under the United Nations Framework Convention on Climate Change
AIIJ:	Activities Implemented Jointly under the United Nations Framework Convention on Climate Change
Annex I:	See Chapter 4, Geographical coverage
Annex II:	See Chapter 4, Geographical coverage
CDM:	Clean Development Mechanism
Convention:	United Nations Framework Convention on Climate Change
COP:	Conference of the Parties to the Convention
EITs:	Economies in Transition (see Chapter 4, Geographical coverage)
IEA:	International Energy Agency
IPCC:	Intergovernmental Panel on Climate Change
OECD:	Organisation for Economic Co-Operation and Development
OLADE:	Organización Latino Americana De Energía
SBI:	Subsidiary Body for Implementation
SBSTA:	Subsidiary Body for Scientific and Technological Advice
TCA:	Technology Co-operation Agreement
UN:	United Nations
UNECE:	United Nations Economic Commission for Europe
UNFCCC:	United Nations Framework Convention on Climate Change
..	not available
-	nil
x	not applicable
+	growth greater than 1 000%

Important cautionary notes

- The estimates of CO₂ emissions from fuel combustion presented in this publication are calculated using the IEA energy balances and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. There are many reasons why **the IEA Secretariat estimates may not be the same as the numbers that a country submits to the UNFCCC**, even if a country has accounted for all of its energy use and correctly applied the *IPCC Guidelines*.
- In this publication, the IEA Secretariat presents CO₂ emissions calculated using both the IPCC Reference Approach and the IPCC Tier 1 Sectoral Approach. In some of the OECD non-member countries, there can be **large differences between the two sets of calculations** due to various problems in some energy data. As a consequence, this can lead to different emission trends between 1990 and 2008 for certain countries. Please see Chapter 1, “IEA emissions estimates” for further details.
- Information on “key sources” from fuel combustion, as developed in the *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, are only given for combustion sources and will not include key sources from fugitive emissions, industrial processes, solvents, agriculture and waste. Please see Chapter 1, “IEA emissions estimates” and Chapter 5, “IPCC methodologies” for further information.

Energy data on OECD member and non-member countries are collected by the Energy Statistics Division (ESD) of the IEA Secretariat, headed by Jean-Yves Garnier. Karen Tréanton, with the assistance of Stève Gervais, is responsible for the estimates of CO₂ emissions from fuel combustion. Desktop publishing support was provided by Sharon Burghgraeve.

CO₂ emission estimates from 1960 to 2008 for the Annex II countries and from 1971 to 2008 for all other countries are available on CD-ROM suitable for use on IBM-compatible personal computers. To order,

please see the information provided at the end of this publication.

In addition, a data service is available on the Internet. It includes unlimited access through an annual subscription as well as the possibility to obtain data on a pay-per-view basis. Details are available at www.iea.org.

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Note	See multilingual glossary at the end of the publication.
Attention	Voir le glossaire en plusieurs langues à la fin du présent recueil.
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INTRODUCTION

2008 SNAPSHOT OF CO₂ EMISSIONS

Latest developments in 2008 (and beyond)

Two important turning points occurred in 2008: for the first time CO₂ emissions from non-Annex I countries¹ surpassed those of the Annex I countries² and the CO₂ emission levels of the Annex I countries fell below 1990 levels. It should be noted, however, that these reductions mostly occurred in the Annex I EIT countries³ and that 2008 emission levels for the Annex II countries⁴ as a whole were actually 12% above 1990 levels.

Global CO₂ emissions increased by 0.4 Gt CO₂ between 2007 and 2008, which represented a growth rate of 1.5%. However, trends varied greatly: emissions of Annex I countries decreased by more than 2%, whereas emissions of non-Annex I countries increased by almost 6%. Due to these diverging trends, for the first time in 2008, the aggregate emissions of the developing countries were larger than those from the developed countries.

1. In this publication, developing countries refers to non-Annex I Parties to the UNFCCC.

2. The Annex I Parties to the 1992 UN Framework Convention on Climate Change (UNFCCC) are: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, European Economic Community, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lichtenstein, Lithuania, Luxembourg, Monaco, the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russia, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and United States. See www.unfccc.int.

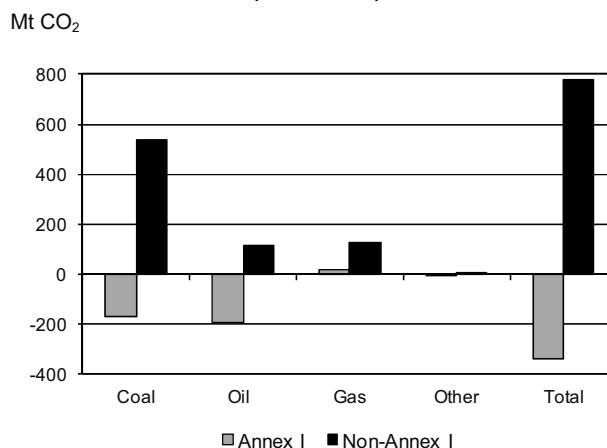
3. Annex I EIT includes Belarus, Bulgaria, Croatia, Czech Republic, Slovak Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovenia and Ukraine.

4. Annex II includes those countries in Annex I that are not part of Annex I EIT.

The changes were not equal across fuels, regions and sectors. The increase in emissions for developing countries was primarily due to an increase in coal demand. The reduction in emissions for developed countries was due to decreases in the demand for both coal and oil (Figure 1).

Early indications suggest that CO₂ emissions trends in 2009 will be similar to 2008. Emissions in the developing countries will increase with growing consumption of fossil fuels in some of the larger countries. Emissions in the developed countries will continue to decrease in 2009 (about double the drop in 2008) as a result of the recent financial crisis, the slowdown in economic activity and the price signal received by consumers after the high energy prices observed in 2008.

Figure 1. Global change in CO₂ emissions (2007-2008)



Key point: CO₂ emissions in Annex I countries decreased by more than 2% in 2008, whereas emissions in developing countries rose by almost 6%.

In the medium term, the Annex I CO₂ emissions are expected to rebound when economic conditions pick

up. In its Reference Scenario, the *World Energy Outlook (WEO 2009)*⁵ projects that world CO₂ emissions from fuel combustion will continue to grow unabated, reaching 40.2 Gt CO₂ by 2030. Such an emission-growth trend would be in line with the worst-case scenario presented by the Intergovernmental Panel on Climate Change (IPCC)⁶ in the *Fourth Assessment Report* (2007), which projects a world average temperature increase of between 2.4°C and 6.4°C by 2100.

CO₂ emissions by fuel

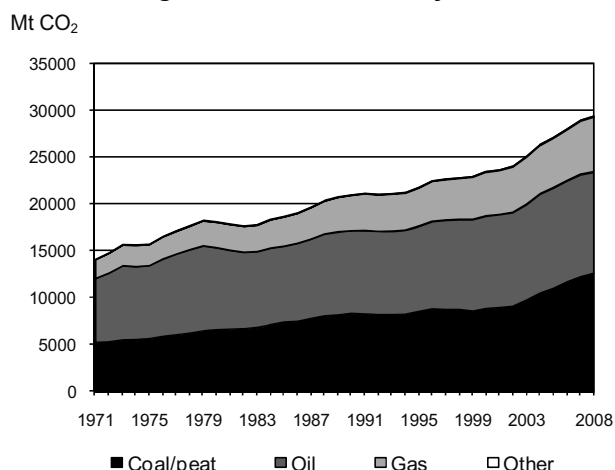
In 2008, 43% of CO₂ emissions from fuel combustion were produced from coal, 37% from oil and 20% from gas. Growth of these fuels in 2008 was quite different, reflecting varying trends that are expected to continue in the future.

Between 2007 and 2008, CO₂ emissions from the combustion of coal increased by 3% and represented 12.6 Gt CO₂. Currently, coal is filling much of the growing energy demand of those developing countries, such as China and India, where energy-intensive industrial production is growing rapidly and large coal reserves exist with limited reserves of other energy sources (Figure 2). Without additional measures, the *WEO 2009* projects that emissions from coal will grow from 18.6 Gt CO₂ in 2030. *Energy Technology Perspectives (ETP 2010)* shows that intensified use of coal would substantially increase CO₂ emissions unless there was very widespread deployment of carbon capture and storage.

CO₂ emissions from oil remained constant in 2008, decreasing 0.7% during the year. The decreasing share of oil in total primary energy supply (TPES) as a result of the growth of coal and the penetration of gas limited the increase of CO₂ emissions from oil, which produced 10.8 Gt CO₂ in 2008. The *WEO 2009* projects that emissions from oil will grow to 13.6 Gt CO₂ in 2030.

Emissions of CO₂ from gas in 2008 represented 5.8 Gt CO₂, 2.6% higher than in the previous year. Again, the *WEO 2009* projects emissions from gas will continue to grow, rising to 8.0 Gt CO₂ in 2030.

Figure 2. CO₂ emissions by fuel

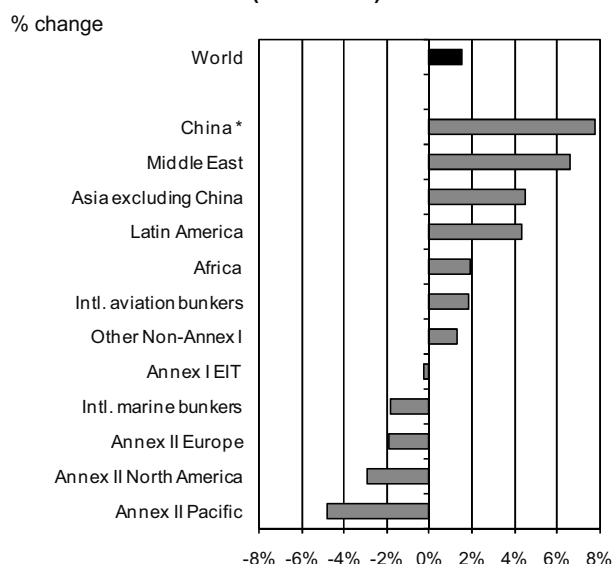


Key point: Combustion of coal drove the growth in global emissions between 2007 and 2008.

CO₂ emissions by region

Between 2007 and 2008, CO₂ emission trends varied markedly by region. As mentioned earlier, CO₂ emissions from non-Annex I countries grew by 6% while those of the Annex I countries decreased by 2%, causing the aggregate emissions of the developing countries to overtake those of the developed countries. At the regional level (Figure 3), CO₂ emissions increased significantly in China (8%), the Middle East (7%), other Asia (4%), Latin America (4%), Africa (4%), other Asia (4%) and Latin America (4%).

Figure 3. Change in CO₂ emissions by region (2007-2008)



* China includes Hong-Kong.

Key point: Between 2007 and 2008, CO₂ emissions increased significantly in Asia (including China), the Middle East and Latin America.

5. Unless otherwise specified, projections from the *World Energy Outlook* refer to the Reference Scenario from the 2009 edition.

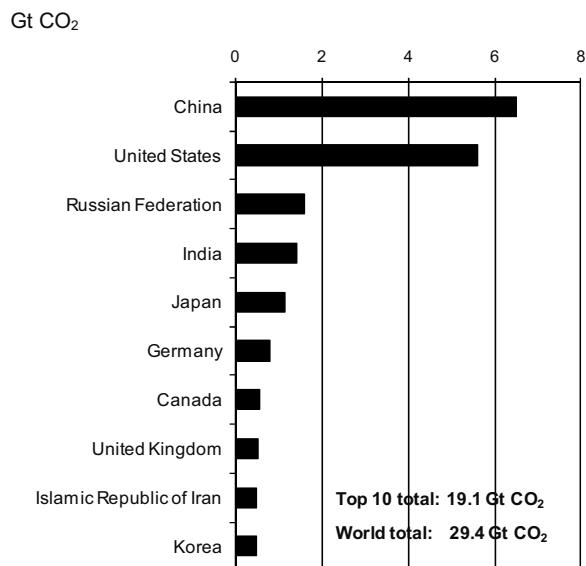
6. The IPCC was created in 1988 by the World Meteorological Organisation and the United Nations Environment Programme to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation.

On the other hand, between 2007 and 2008, CO₂ emissions decreased by 5% in the Annex II Pacific countries⁷, by 3% in Annex II North American countries⁸ and by 2% in the Annex II European countries⁹. Emissions from the group of countries with economies in transition (Annex I EIT) remained fairly stable.

However, regional differences in contributions to global emissions conceal even larger differences among individual countries (Figure 4).

Two-thirds of world emissions for 2008 originated from just ten countries, with the shares of China and the United States far surpassing those of all others. Combined, these two countries alone produced 12.1 Gt CO₂, about 41% of world CO₂ emissions.

Figure 4. Top 10 emitting countries in 2008

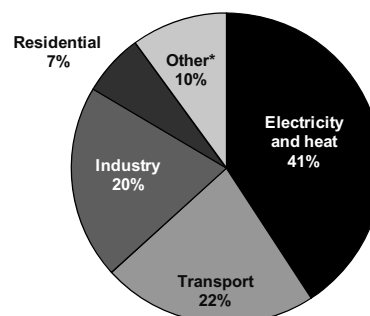


Key point: The top 10 emitting countries account for about two-thirds of the world CO₂ emissions.

CO₂ emissions by sector

Two sectors, electricity and heat generation and transport, produced two-thirds of global CO₂ emissions in 2008 (Figure 5).

Figure 5. World CO₂ emissions by sector in 2008



* Other includes commercial/public services, agriculture/forestry, fishing, energy industries other than electricity and heat generation, and other emissions not specified elsewhere.

Key point: The combined share of electricity and heat generation and transport represented two-thirds of global emissions in 2008.

Generation of electricity and heat was by far the largest producer of CO₂ emissions and was responsible for 41% of the world CO₂ emissions in 2008. Worldwide, this sector relies heavily on coal, the most carbon-intensive of fossil fuels, amplifying its share in global emissions. Countries such as Australia, China, India, Poland and South Africa produce between 69% and 94% of their electricity and heat through the combustion of coal.

Between 2007 and 2008, total CO₂ emissions from the generation of electricity and heat were stable (Figure 6), although the fuel mix changed slightly. CO₂ emissions from gas grew by 3% and from coal remained constant while emissions from oil decreased by 4%. The future development of the emissions intensity of this sector depends strongly on the fuels used to generate the electricity and on the share of non-emitting sources, such as renewables and nuclear.

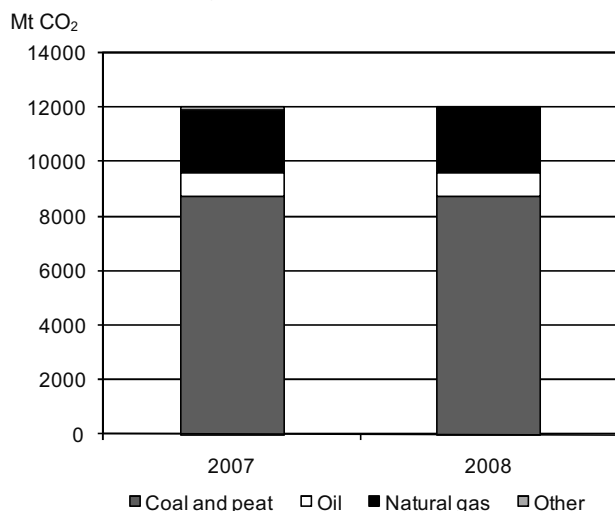
By 2030, the *WEO 2009* projects that demand for electricity will be almost twice as high as current demand, driven by rapid growth in population and income in developing countries, by the continuing increase in the number of electrical devices used in homes and commercial buildings, and by the growth in electrically driven industrial processes.

Transport, the second-largest sector, represented 22% of global CO₂ emissions in 2008. CO₂ emissions in this sector also remained stable between 2007 and 2008 (Figure 7).

7. Annex II Pacific includes Australia, Japan and New Zealand.

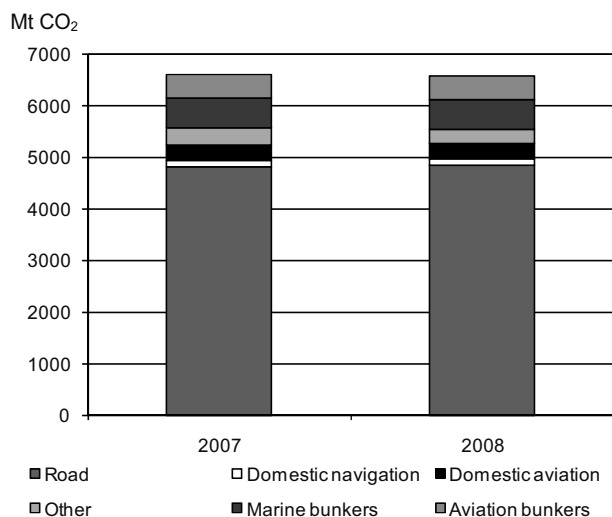
8. Annex II North America includes Canada and the United States.

9. Annex II Europe includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein (not available in this publication), Luxembourg, Monaco (included with France), the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Figure 6. CO₂ emissions from electricity and heat generation* in 2007 and 2008

* Refers to main activity producers and autoproducers of electricity and heat.

Key point: CO₂ emissions from electricity and heat generation remained constant between 2007 and 2008, after slightly increasing the previous year.

Figure 7. CO₂ emissions from transport in 2007 and 2008

Key point: CO₂ emissions from transport are dominated by road.

The United States has the highest level of passenger travel per capita in the world (more than 25 000 km per person per year). Until recently, lower fuel prices in the United States contributed to the use of larger vehicles, while in Europe higher fuel prices encouraged improved fuel economy (along with the EU voluntary agreement with manufacturers). As a

result, there is more than a 50% variation in the average fuel consumption of new light-duty vehicles across OECD member countries (*ETP 2010*, p. 262).

Global demand for transport appears unlikely to decrease in the foreseeable future; the *WEO 2009* projects that transport will grow by 45% by 2030. To limit the emissions from this sector, policy makers should first and foremost consider measures to encourage or require improved vehicle efficiency, as the United States has recently done and the European Union is currently doing as a follow-up to the voluntary agreements. Policies that encourage a shift from cars to public transportation and to lower-emission modes of transportation can also help. Finally, policies can encourage a shift to new, preferably low-carbon fuels. These include electricity (e.g. electric and plug-in hybrid vehicles), hydrogen (e.g. through the introduction of fuel cell vehicles) and greater use of biofuels (e.g. as a blend in gasoline and diesel fuel). To avoid a rebound in transport fuel demand, these moves must also be backed up by emissions pricing or fuel excise policies.

These policies would both reduce the environmental impact of transport and help to secure domestic fuel supplies, which are sometimes unsettled by the threat of supply disruptions, whether from natural disasters, accidents or the geopolitics of oil trade. As these policies will ease demand growth, they are also likely to help reduce oil prices below what the prices might otherwise be.

Coupling emissions with socio-economic indicators¹⁰

Indicators such as those briefly discussed in this section strongly reflect energy constraints and choices made to supply the economic activities of each country. They also reflect the sectors that predominate in different countries' economies.

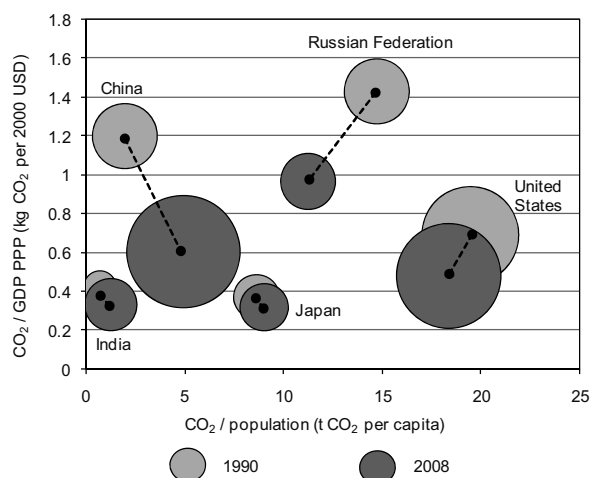
In 2008, the largest five emitters (China, the United States, the Russian Federation, India and Japan) comprised 45% of the total population and together produced 55% of the global CO₂ emissions and 50% of the world GDP. However, the relative shares of these five countries for all three variables were very diverse.

10. No single indicator can provide a complete picture of a country's CO₂ emissions performance or its relative capacity to reduce emissions. The indicators discussed here provide an indication of performance but are certainly incomplete.

In the United States, the large share of global emissions is associated with a commensurate share of economic output (GDP), the largest in the world. Japan, with a GDP more than double that of the Russian Federation, emits 28% less than the Russian Federation.

Although climate and other variables also affect energy use, relatively high values of emissions per GDP indicate a potential for decoupling CO₂ emissions from economic growth. Possible improvements can derive from fuel switching away from carbon-intensive sources or from energy efficiency at all stages of the energy supply chain (from fuel extraction to energy end-use).¹¹ Among the five largest emitters of CO₂ in 2008, China, the Russian Federation and the United States have significantly reduced their CO₂ emissions per unit of GDP between 1990 and 2008 (Figure 8). The other two countries, India and Japan, already had much lower emissions per GDP.

Figure 8. Trends in CO₂ emission intensities for the top 5 emitting countries*

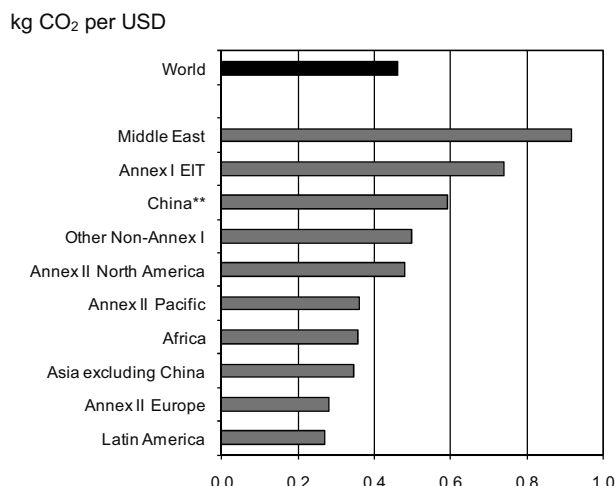


* Size of circle represents total CO₂ emissions from the country in that year.

Key point: China, the Russian Federation and the United States have all made significant improvements in the amount of CO₂ emissions per unit of GDP they emit.

Worldwide, the highest levels of emissions per GDP are observed for the oil and gas exporting region of the Middle East, for the relatively energy-intensive EITs and for China (Figure 9).

Figure 9. CO₂ emissions per GDP* by major world regions in 2008



* GDP in 2000 USD, using purchasing power parities.

** China includes Hong Kong.

Key point: Emission intensities in economic terms vary greatly around the world.

As compared to emissions per unit of GDP, the range of per capita emission levels across the world is even larger, highlighting wide divergences in the way different countries and regions use energy.

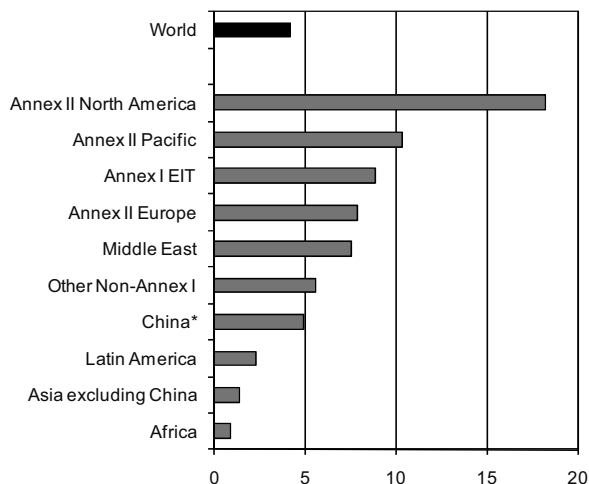
In 2008, the United States alone generated 19% of world CO₂ emissions, despite a population of less than 5% of the global total. Conversely, China contributed a comparable share of world emissions (22%) while accounting for 20% of the world population. India, with 17% of world population, contributed less than 5% of the CO₂ emissions. Among the five largest emitters, the levels of per capita emissions were very diverse, ranging from 1 t of CO₂ per capita for India and 5 t for China to 18 t for the United States.

Industrialised countries emit far larger amounts of CO₂ per capita than the world average (Figure 10). However, some rapidly expanding economies are significantly increasing their emissions per capita. For example, between 1990 and 2008, among the top 5 emitting countries, China more than doubled its per capita emissions and India increased them by almost 80%. Clearly, these two countries contributed much to the 10% increase of global per capita emissions over the period. Conversely, both the Russian Federation and the United States decreased their per capita emissions significantly over the same period.

11. The IEA's Policies and Measures Databases offer access to information on energy-related policies and measures taken or planned to reduce greenhouse-gas emissions, improve energy efficiency and support renewable energy development and deployment. The online databases can be consulted at: www.iea.org/textbase/pm/index.html.

Figure 10. CO₂ emissions per capita by major world regions in 2008

T CO₂ per capita



* China includes Hong Kong.

Key point: Emissions per capita vary even more widely across world regions than GDP per capita.

Developing a low-carbon world

Until recently, industrialised countries have emitted the large majority of anthropogenic greenhouse gases. However shares of developing countries are rising very rapidly and are projected to continue to do so. To shift towards a low-carbon world, mitigation measures now taking shape within industrialised countries will need to be accelerated, and complemented by comprehensive efforts worldwide.

Complementing various national policies and measures, the Kyoto Protocol of the UNFCCC is by far the most comprehensive multinational effort to mitigate climate change, both politically and geographically. Having entered into force in February 2005, the Protocol commits industrialised countries (as a group) to curb domestic emissions by about 5% relative to 1990 by the 2008-12 first commitment period. The Protocol also creates “flexible mechanisms” by which industrialised countries can

transfer emission allowances among themselves and earn emission credits from emissions reduction projects in participating developing countries and EIT countries.

Despite its extensive coverage (192 countries), the Protocol is limited in its potential to address global emissions since not all major emitters are included in reduction commitments. The United States remains outside of its jurisdiction and though most developing countries (*i.e.* non-Annex I countries) have signed the Protocol, they do not face emissions targets. The Kyoto Protocol implies action on less than one-third of global CO₂ emissions as measured in 2008 (Table 1).

The Protocol has made carbon a tradable commodity, and has been a key driver for the development of emissions trading schemes as detailed in the following section.

Emissions trading schemes

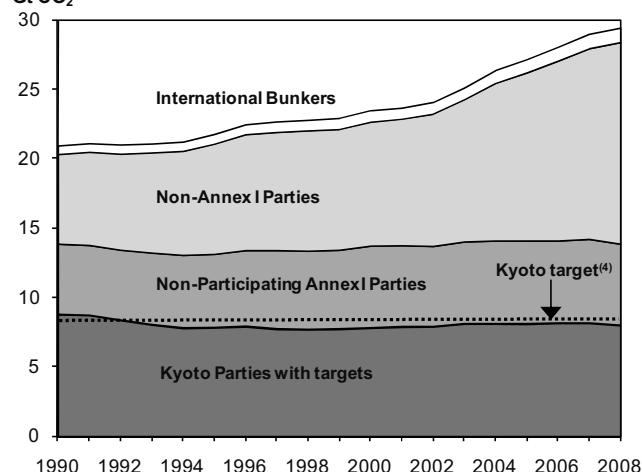
Emissions trading schemes (ETS) are developing or being proposed in several regions and countries around the world. While some are operational (EU ETS, New Zealand, Norway, Tokyo, Switzerland, the Regional Greenhouse Gas Initiative in the United States, Alberta, and New South Wales Australia) or intend to begin soon (the Western Climate Initiative among US states and Canadian provinces), other jurisdictions are still evaluating options (Japan, Korea, Brazil, China, Canada) or considering whether to proceed with existing well-developed proposals (Australia, United States).

Given the significant uncertainties surrounding future international climate commitments, policy makers have allowed flexibility in changing design options over the longer term. Indeed, lessons from the first years of existing schemes are helping the elaboration of others (Reinaud and Philibert, 2007).

In the European Union, the largest scheme in operation is the EU ETS, which covers emitters in the energy and industrial sectors (aviation will be added from 2012). Norway’s ETS is fully linked to the EU system. The lessons from its first two phases have helped to shape the scheme’s post-2012 design (Ellerman *et al.*, 2010).

Table 1. World CO₂ emissions from fuel combustion and Kyoto Protocol targets⁽¹⁾Mt CO₂

	1990	2008	% change 90-08	Kyoto Target		1990	2008	% change 90-08	Kyoto Target
KYOTO PARTIES WITH TARGETS	8 785.3	7 980.1	-9.2%	-4.7% e	OTHER COUNTRIES	11 566.6	20 368.2	76.1%	
<i>North America</i>	432.3	550.9	27.4%		<i>Non-participating</i>				
Canada	432.3	550.9	27.4%	-6%	<i>Annex I Parties</i>	5 119.5	5 923.6	15.7%	
<i>Europe</i>	3 153.6	3 222.9	2.2%		Belarus	124.0	64.2	-48.2%	none
Austria	56.5	69.3	22.7%	-13%	Turkey	126.9	263.5	107.6%	none
Belgium	107.9	111.0	2.8%	-7.5%	United States	4 868.7	5 595.9	14.9%	-7%
Denmark	50.4	48.4	-4.0%	-21%	<i>Other Regions</i>	6 447.1	14 444.6	124.0%	
Finland	54.4	56.6	4.0%	0%	Africa	545.6	889.9	63.1%	none
France ⁽²⁾	352.3	368.2	4.5%	0%	Middle East	592.5	1 492.3	151.8%	none
Germany	950.4	803.9	-15.4%	-21%	Non-OECD Europe ⁽³⁾	106.1	92.2	-13.1%	none
Greece	70.1	93.4	33.2%	+25%	Other FSU ⁽³⁾	578.8	419.1	-27.6%	none
Iceland	1.9	2.2	17.0%	+10%	Latin America ⁽³⁾	869.5	1 476.5	69.8%	none
Ireland	29.8	43.8	46.7%	+13%	Asia (excl. China) ⁽³⁾	1 510.1	3 524.1	133.4%	none
Italy	397.4	430.1	8.2%	-6.5%	China	2 244.4	6 550.5	191.9%	none
Luxembourg	10.5	10.4	-0.6%	-28%					
Netherlands	155.8	177.9	14.1%	-6%	INTL. MARINE BUNKERS	354.8	578.2	63.0%	
Norway	28.3	37.6	33.0%	+1%	INTL. AVIATION BUNKERS	258.2	454.8	76.1%	
Portugal	39.3	52.4	33.5%	+27%					
Spain	205.8	317.6	54.3%	+15%	WORLD	20 964.8	29 381.4	40.1%	
Sweden	52.8	45.9	-13.0%	+4%					
Switzerland	40.7	43.7	7.4%	-8%					
United Kingdom	549.3	510.6	-7.0%	-12.5%					
<i>Pacific</i>	1 346.4	1 582.0	17.5%						
Australia	260.1	397.5	52.9%	+8%					
Japan	1 064.4	1 151.1	8.2%	-6%					
New Zealand	22.0	33.3	51.5%	0%					
<i>Economies in Transition</i>	3 852.9	2 624.3	-31.9%						
Bulgaria	74.9	48.8	-34.9%	-8%					
Croatia	21.6	20.9	-3.0%	-5%					
Czech Republic	155.1	116.8	-24.7%	-8%					
Estonia	36.0	17.6	-51.1%	-8%					
Hungary	66.7	53.0	-20.6%	-6%					
Latvia	18.6	7.9	-57.5%	-8%					
Lithuania	33.1	14.2	-57.0%	-8%					
Poland	343.8	298.7	-13.1%	-6%					
Romania	167.1	89.9	-46.2%	-8%					
Russian Federation	2 178.8	1 593.8	-26.8%	0%					
Slovak Republic	56.7	36.2	-36.1%	-8%					
Slovenia	12.5	16.7	33.8%	-8%					
Ukraine	687.9	309.6	-55.0%	0%					

Gt CO₂

(1) The targets apply to a basket of six greenhouse gases and allow sinks and international credits to be used for compliance with the target. The overall EU-15 target under the Protocol is 8%, but the member countries have agreed on a burden-sharing arrangement as listed. Because of lack of data and information on base years and gases, an overall "Kyoto target" cannot be precisely calculated for total Kyoto Parties: estimates applying the targets to IEA energy data suggest the target is equivalent to about 4.7% on an aggregate basis for CO₂ emissions from fuel combustion.

(2) Emissions from Monaco are included with France.

(3) Composition of regions differs from elsewhere in this publication to take into account countries that are not Kyoto Parties.

(4) The Kyoto target is calculated as percentage of the 1990 CO₂ emissions from fuel combustion only, therefore it does not represent the total target for the six-gas basket. This assumes that the reduction targets are spread equally across all gases.

Key point: Existing climate goals have not always led to reductions in CO₂ emissions from fuel combustion.

In December 2008, the European Council and the European Parliament endorsed an agreement on the climate change and energy package which implements a political commitment by the European Union to reduce its greenhouse-gas emissions by 20% by 2020 compared to 1990 levels.¹² The EU ETS will play a key role in achieving this target, as the 2020 emissions cap for ETS installations is 21% below the actual level of 2005 emissions,¹³ or 34% below if the overall target moves to a 30% reduction. There will be a significant increase in the proportion of allowances auctioned rather than allocated for free, including full auctioning (in general) for the power generation sector. Continued use of credits from the Kyoto Protocol flexible mechanisms Clean Development Mechanism (CDM) and Joint Implementation (JI) will be allowed, with both quantitative and qualitative restrictions.

In New Zealand, a comprehensive economy-wide emission trading scheme (NZ ETS) is being progressively introduced, starting with the forestry sector in January 2008. The energy, transport and industrial sectors are included from July 2010, and waste and agricultural emissions enter by 2015. There is a transition phase from 2010 to 2012 with a capped price and partial obligations. The scheme is fully linked to the international Kyoto market, and allows unlimited use of Kyoto Protocol project and forestry credits. No emissions cap is specified: linking to the international market is intended rather to ensure that an appropriate carbon price is set in the New Zealand economy.

Several other ETS schemes are operating, including in countries that are not Parties to the Kyoto Protocol. In the United States, the first regional scheme (the Regional Greenhouse Gas Initiative covering the electricity sector in the northeastern states) began on 1 January 2009. Small schemes are also in place in New South Wales Australia (covering the power sector), Tokyo (covering commercial sites) and Alberta (covering large emitters). Switzerland's ETS allows companies to manage their emissions through trading instead of facing the country's carbon tax.

The Western Climate Initiative is a collective emissions trading system agreed between 11 US states and

Canadian provinces. Trading is scheduled to begin in 2012, and a smaller group of five participants (California, New Mexico, British Columbia, Ontario and Quebec) currently intend to begin trading at that time. The programme is designed to reduce emissions to 15% below 2005 levels by 2020, with allocations starting at a best-estimate of actual 2012 emissions. The scheme will have a broad scope once fully phased in, covering up to 90% of economy-wide emissions, although individual states have discretion over which sectors will be included.

Other detailed proposals for ETS have been developed in Australia and the United States, but in both cases legislation to enact the schemes failed to pass.

In Australia, the so-called Carbon Pollution Reduction Scheme (CPRS) included broad coverage of greenhouse-gas emissions and sectors, covering around 75% of Australian greenhouse-gas emissions, a mix of direct and upstream point of obligation, and assistance to help households and business adjust. Australian climate policy is now to be reviewed following parliamentary elections.

In the United States, the House of Representatives passed the American Clean Energy and Security Act (ACES) in June 2009, a comprehensive climate change and energy package. The bill includes a cap-and-trade programme covering 85% of US greenhouse-gas emissions, including power, industry, transport, commercial and residential sectors. The targets are set against 2005 emission levels, at 3% reduction by 2012, 17% by 2020, 42% by 2030 and 83% by 2050. However similar legislation failed to achieve support in the Senate, and this bill will not proceed in its current form.

A number of other domestic trading schemes are also under consideration.

The Canadian government intends to introduce domestic emissions trading as part of a market-based approach to reducing emissions of greenhouse gases, and has developed a domestic offsets programme as a step towards this. Canada will seek to align the design of its scheme with future US markets.

Japan's government intends to implement a mandatory emissions trading scheme to help meet its goal of a 25% reduction in greenhouse gases by 2020. Design options being considered range from economy-wide to power-sector-only trading, and emissions obligations could be absolute caps or output-based. The infrastructure for emissions trading is already established in Japan, with an active voluntary trading scheme

12. A 30% reduction target is proposed if other Parties were to take equally ambitious mitigation objectives.

13. Annual cap: 1 974 Mt in 2013, falling in linear fashion to 1 720 Mt by 2020; average annual cap over 2013-20: 1 846 Mt (compared to an annual cap of 2 083 Mt in phase 2). If the overall target moves to a 30% reduction, the 2020 ETS cap will be reduced to 34% below 2005 levels.

established in 2005 (the Keidanren Voluntary Action Plan), and a voluntary experimental emissions trading scheme launched in 2008.

The Korean government intends to submit legislation in 2010 to establish an emissions trading scheme, to assist in delivering Korea's target of a 30% improvement on business-as-usual (BAU) emissions by 2020. Details are still being developed, but it will reportedly cover around 600 large companies responsible for 70% of Korea's emissions, starting around 2012.

Brazil is also reportedly considering the introduction of a domestic emissions trading scheme, to help deliver its target of reducing emissions by up to 38.9% by 2020. The role of a carbon market is being studied for reducing emissions in the power, transport, agriculture and industrial sectors. Further details may be available in 2010.

China intends to set emissions targets for selected areas as part of its 12th five-year plan (2011 to 2015), with emissions trading a key tool being considered for delivery of these targets.

Steps for future action

Held in late 2005, the first Meeting of the Parties to the Kyoto Protocol (COP/MOP1) witnessed the official opening of talks on post-2012 climate change policy. The Bali Road Map adopted at COP/MOP3 in Bali in 2007 established a two-track process, *i.e.* both for the Convention and Kyoto Protocol strands, aiming at the identification of a post-2012 global climate regime to be adopted by COP15 and COP/MOP5 in Copenhagen in 2009. In Bali, Parties organised two official fora: the Ad Hoc Working Group on the Kyoto Protocol (AWG-KP) and the Ad Hoc Working Group on Long-term Co-operative Action (AWG-LCA).

The AWG-KP focuses on the design of post-2012 commitments for Annex I Parties under the Protocol. Ideally, it would also provide some certainty to carbon-constrained investments in infrastructure and to the carbon market itself. However, the AWG has no mandate to encourage participation from non-Annex I Parties or from non-participating Annex I Parties.

By contrast, the broader AWG-LCA was designed to enable full and sustained implementation of the UN Framework Convention on Climate Change by all Parties, up to and beyond 2012, through long-term co-operative action. While the Bali Action Plan, adopted under the Convention track, did not introduce binding commitments to reduce greenhouse-gas emissions, it

included the request for developing countries to contribute to the mitigation of global warming in the context of sustainable development. In addition, the plan envisaged enhanced actions on adaptation, technology development and on the provision of financial resources, as well as measures against deforestation. The Bali Action Plan introduced a focus on mitigation actions by all Parties and the provision of financial resources by developed countries that are "measurable, reportable and verifiable", now central to the establishment of a post-2012 framework for climate action.

COP15 and COP/MOP5 in Copenhagen did not see the identification of a post-2012 global climate regime, and the mandate of the two AWGs was extended for another year. In an unprecedented move, heads of states and high-level representatives negotiated the Copenhagen Accord, stating the goal of limiting global temperature increase to 2°C above pre-industrial levels, outlining commitments for the provision of financial resources, and sketching a framework for monitoring and reviewing mitigation actions and commitments. Annex I Parties submitted quantified economy-wide greenhouse-gas targets to 2020 as part of the accord, and several non-Annex I countries also listed mitigation actions, or sectoral or economy-wide greenhouse-gas targets. While the Copenhagen Accord was not adopted as a COP decision, 138 Parties have expressed their intention to be listed as agreeing to the Accord as of September 2010.

The challenge of post-2012 discussions is the need to engage developing countries with approaches, possibly including the carbon market, which suit their capacity and their legitimate aspiration for economic and social development. The Asia Pacific Partnership for Clean Development and Climate (APP or AP7), the G8 2005 Gleneagles Plan of Action, and the Major Economies Forum on Energy and Climate (MEF) and Clean Energy Ministerial processes seek to involve developed and developing nations in common measures to address climate change. Other international fora gathering both developed and developing countries have emerged to further mitigation efforts in specific areas, such as the International Renewable Energy Agency (IRENA), and the International Partnership for Energy Efficiency Co-operation (IPEEC).

The AP7, which groups Australia, Canada, China, India, Japan, Korea and the United States, focuses on the emissions of specific sectors (iron and steel, cement, aluminium, mining, buildings and appliances) and the methods of clean fossil energy use, renewable

energy generation and more efficient power generation and transmission.

Canada, France, Germany, Italy, Japan, the Russian Federation, the United Kingdom and the United States launched the July 2005 G8 Gleneagles Plan of Action to, in part, promote clean energy and sustainable development while mitigating climate change. The IEA was tasked under the Plan of Action to develop concrete recommendations to help the G8 achieve its clean energy objectives. Additionally, the G8 sought to engage South Africa, India, Brazil, China and Mexico in an official dialogue to address climate change, clean energy, and sustainable development worldwide. This commitment by the G8 was reiterated at all subsequent summits.

Launched in March 2009, the MEF has facilitated candid dialogue among 17 major economies, both developed and developing, to help achieve a successful outcome in UN climate negotiations. It also supports concrete initiatives and joint ventures aimed at increasing the supply of clean energy while reducing greenhouse-gas emissions. At the G8 summit in L'Aquila, Italy on 9 July 2009, the 17 heads of the MEF countries set a clear goal for international climate policy: the increase in global climate temperature above pre-industrial levels ought not to exceed 2°C. The G20 summits have also served as a forum to advance climate change and clean energy discussions, including a commitment to rationalising and phasing out inefficient fossil fuel subsidies over the medium term.

In all these efforts, timely and accurate CO₂ and other greenhouse-gas statistics will prove central to ascertain compliance to international agreements and to inform policy makers and carbon market participants. The ability of countries to monitor and review emissions from their sources is essential in their engagement towards national and global greenhouse-gas mitigation.

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REGIONAL ASPECTS OF THE ENERGY-CLIMATE CHALLENGE

A growing body of evidence establishes the links between climate change and the CO₂ emissions that arise from energy production and consumption. This chapter provides background on the link between energy use and climate change and then examines how growing demand in some rapidly expanding economies, all of which are in non-OECD regions, will dramatically change future emissions trends. It closes with a call for all countries (and not just the industrialised countries) to address this increasingly urgent global issue.

Understanding energy and climate change

In its *Fourth Assessment Report*¹⁴, the IPCC concluded: “Most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse-gas concentrations”. The language “very likely” has been upgraded from the “likely” that was referred to six years earlier in the *Third Assessment Report*, thus confirming the broad acceptance by scientists of the link between greenhouse-gas emissions and global climate change. Energy production and use have various environmental implications: since energy represents about 65% of global anthropogenic greenhouse-gas emissions, reducing emissions must

necessarily start with actions geared to reduce emissions from fuel combustion.

Greenhouse gases and global warming

The increased concentrations of key greenhouse gases are a direct consequence of human activities. Since anthropogenic greenhouse gases accumulate in the atmosphere, they produce net warming by strengthening the natural “greenhouse effect”.

Carbon dioxide (CO₂) concentrations in the atmosphere have been increasing over the past century compared to the rather steady level of the pre-industrial era (about 280 parts per million in volume, or ppmv). The 2005 concentration of CO₂ (379 ppmv) was about 35% higher than in the mid-1800s, with the fastest growth occurring in the last ten years (1.9 ppmv/year in the period 1995-2005). Significant increases have also occurred in levels of methane (CH₄) and nitrous oxide (N₂O).

Some impacts of the increased greenhouse-gas concentrations may be slow to become apparent since stability is an inherent characteristic of the interacting climate, ecological and socio-economic systems. Even after stabilisation of the atmospheric concentration of CO₂, anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks. Some changes in the climate system would be irreversible in the course of a human lifespan.

Given the long lifetime of CO₂ in the atmosphere, stabilising concentrations of greenhouse gases at any level would require large reductions of global CO₂ emissions from current levels. The lower the chosen level for stabilisation, the sooner the decline in global CO₂ emissions would need to begin, or the deeper the emission reduction would need to be on the longer term.

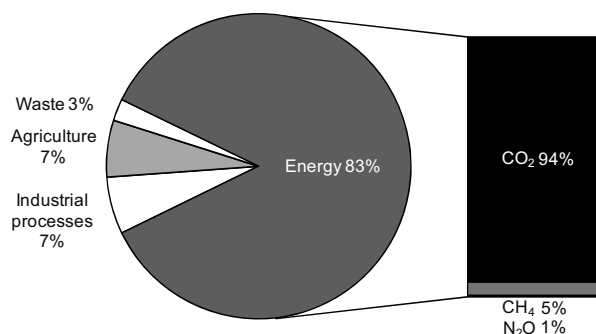
14. *IPCC Fourth Assessment Report – Climate Change 2007*, available at www.ipcc.ch. In the summary for policy makers, the following terms have been used to indicate the assessed likelihood, using expert judgement, of an outcome or a result: *Virtually certain* > 99% probability of occurrence, *Extremely likely* > 95%, *Very likely* > 90%, *Likely* > 66%, *More likely than not* > 50%, *Unlikely* < 33%, *Very unlikely* < 10%, *Extremely unlikely* < 5%.

The UNFCCC creates a structure for intergovernmental efforts to tackle the challenge posed by climate change. The Convention's ultimate objective is to stabilise greenhouse-gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This would require significant reductions in global greenhouse-gas emissions.

Energy use and greenhouse gases

Among the many human activities that produce greenhouse gases, the use of energy represents by far the largest source of emissions. Energy accounts for over 80% of the anthropogenic greenhouse gases in Annex I countries, with emissions resulting from the production, transformation, handling and consumption of all kinds of energy commodities (Figure 11). Smaller shares correspond to agriculture, producing mainly CH₄ and N₂O from domestic livestock and rice cultivation, and to industrial processes not related to energy, producing mainly fluorinated gases and N₂O.

Figure 11. Shares of anthropogenic greenhouse-gas emissions in Annex I countries, 2008*



* Based on Annex I data for 2008; without Land Use, Land-Use Change and Forestry, and with Solvent Use included in Industrial Processes.

Source: UNFCCC.

Key point: Accounting for the largest share of global greenhouse-gas emissions, energy emissions are predominantly CO₂.

Greenhouse-gas emissions from the energy sector are dominated by the direct combustion of fuels.¹⁵ A by-

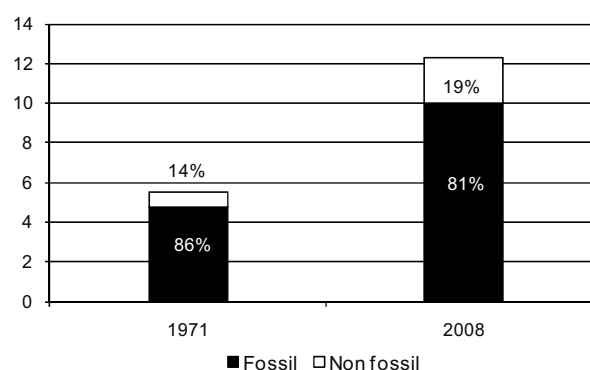
product of fuel combustion, CO₂ results from the oxidation of carbon in fuels.

CO₂ from energy represents about 83% of the anthropogenic greenhouse-gas emissions for the Annex I countries and about 65% of global emissions. This percentage varies greatly by country, due to diverse national energy structures.

Worldwide economic stability and development require energy. Global total primary energy supply (TPES) doubled between 1971 and 2008, mainly relying on fossil fuels (Figure 12).

Figure 12. World primary energy supply*

Gt of oil equivalent



* World primary energy supply includes international bunkers.

Key point: Fossil fuels still account for most of the world energy supply.

Despite the growth of non-fossil energy (such as nuclear and hydropower) considered as non-emitting,¹⁶ fossil fuels have maintained their shares of the world energy supply relatively unchanged over the course of the past 35 years. In 2008, fossil sources accounted for 81% of the global TPES.

Though coal represented only one-quarter of the world TPES in 2008, it accounted for 43% of the global CO₂ emissions due to its heavy carbon content per unit of energy released (Figure 13). As compared to gas, coal is on average nearly twice as emission intensive.¹⁷

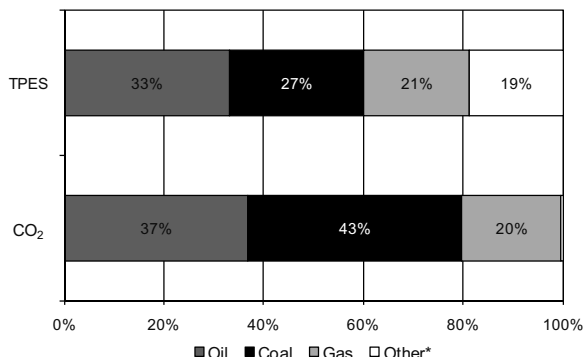
15. Energy includes emissions from "fuel combustion" (the large majority) and "fugitive emissions", which are intentional or unintentional releases of gases resulting from production, processes, transmission, storage and use of fuels (e.g. CH₄ emissions from coal mining or oil and gas systems).

16. Excluding the life cycle of all non-emitting sources and excluding combustion of biomass (considered as non-emitting CO₂, based on the assumption that the released carbon will be reabsorbed by biomass regrowth, under balanced conditions).

17. IPCC default carbon emission factors from the 1996 IPCC Guidelines: 15.3 t C/TJ for gas, 16.8 to 27.5 t C/TJ for oil products, 25.8 to 29.1 t C/TJ for primary coal products.

Figure 13. World primary energy supply and CO₂ emissions: Shares by fuel in 2008

Percent share

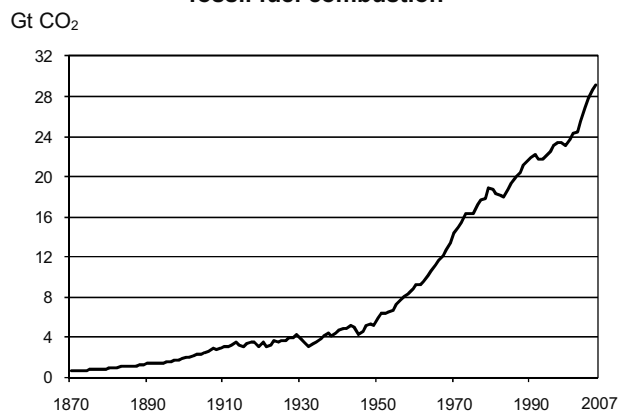


* Other includes nuclear, hydro, geothermal, solar, tide, wind, combustible renewables and waste.

Key point: Coal generates about twice the CO₂ emissions of gas, while having a comparable share in the world energy supply.

Growing world energy demand from fossil fuels plays a key role in the upward trend in CO₂ emissions (Figure 14). Since the Industrial Revolution, annual CO₂ emissions from fuel combustion dramatically increased from near zero to 29 Gt CO₂ in 2008.

Figure 14. Trend in CO₂ emissions from fossil fuel combustion



Source: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, US Department of Energy, Oak Ridge, Tenn., United States.

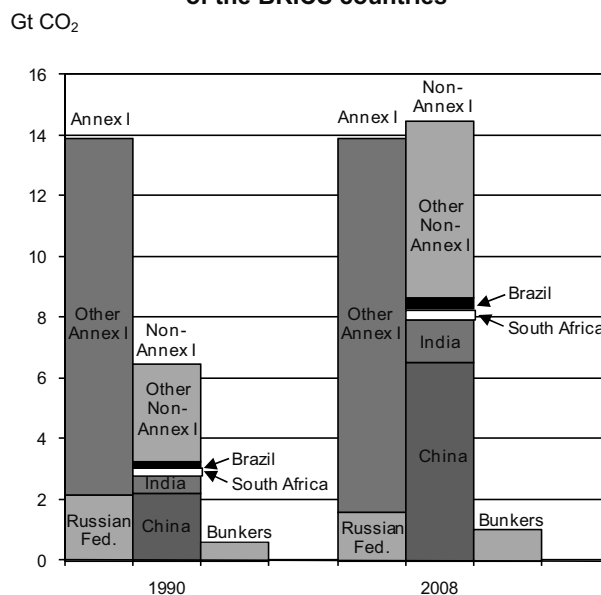
Key point: Since 1870, CO₂ emissions from fuel combustion have risen exponentially.

The link between climate change and energy is a part of the larger challenge of sustainable development. The socio-economic and technological characteristics of development paths will strongly affect emissions, the rate and magnitude of climate change, climate change impacts, the capability to adapt and the capacity to mitigate the emissions themselves.

BRICS countries altering regional balance

One of the most important recent developments in the world economy is the increasing economic integration of large non-OECD countries, in particular Brazil, the Russian Federation, India, China and South Africa, the so-called BRICS countries. Already, the BRICS represent over one-fourth of world GDP, up from 18% in 1990. In 2008, these five countries represented 31% of global energy use and 35% of CO₂ emissions from fuel combustion (Figure 15). These shares are likely to rise further in coming years if the strong economic performance currently occurring in most of these countries continues, as many commentators expect. In fact, China, the Russian Federation and India are already three of the four countries that emit the most CO₂ emissions in absolute terms.¹⁸

Figure 15. The growing importance of the BRICS countries



Key point: With the exception of the Russian Federation, the BRICS countries represent a growing share of CO₂ emissions in the world.

This brief discussion focuses on the BRICS countries, of which only the Russian Federation is a member of Annex I Parties to the UNFCCC. Each of these countries has very different endemic resources, energy supply constraints and sectoral consumption patterns. Consequently, the issues relating to CO₂ emissions facing these five countries are quite different.

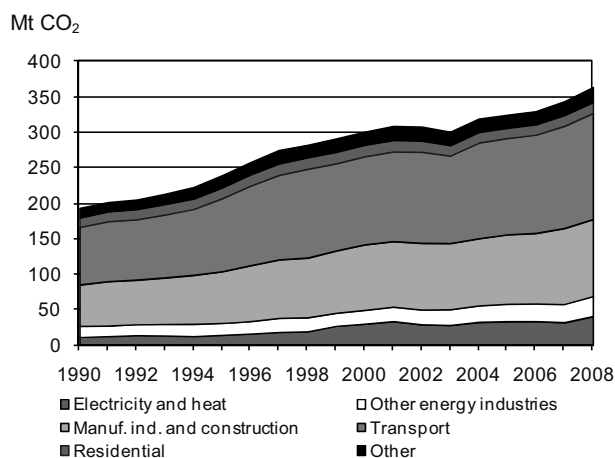
18. The largest emitter is the United States.

Brazil

Brazil is the third-largest emitter of total greenhouse gases in the world, with the particularity that the country's energy system has a relatively minor impact on greenhouse-gas emissions (only 15%). The bulk of Brazilian greenhouse-gas emissions (85%) comes instead from agriculture, land-use and forestry activities, mainly through the expansion of agricultural frontiers in the Amazon region.

Compared to the Russian Federation, China and India, CO₂ emissions from fuel combustion in Brazil are small, representing only 1.2% of global CO₂ emissions from fuel combustion. Brazil's energy matrix is one of the cleanest in the world with renewables accounting for 44% of TPES. Brazil is also one of the world's largest producers of hydropower. Within the energy sector, the sub-sectors that contribute the most to total greenhouse-gas emissions – transport (41% in 2008) and industry (30%) – are those likely to grow the most over the next years (Figure 16).

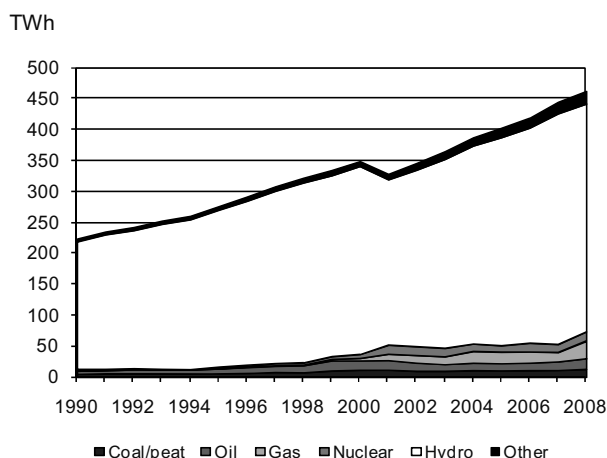
Figure 16. Brazil: CO₂ emissions by sector



Key point: The transport sector produces the largest share of CO₂ emissions from fuel combustion in Brazil.

Electricity generation in Brazil relies heavily on hydropower (Figure 17). Over the last three decades, the number of major dams has grown steadily and hydropower accounted for 80% of total electricity generation in 2008. Many of Brazil's hydropower generating facilities are located far away from the main demand centres, resulting in high transmission and distribution losses. Droughts in recent years have led to a wider diversification in the electricity production mix, increasing the use of gas.

Figure 17. Brazil: Electricity generation by fuel



Key point: Brazilian electricity generation draws heavily on hydropower.

In 2009, the government announced plans to build two new large hydroelectric plants. As a result, there are currently 22 GW of hydropower capacity already contracted and under construction (including the 11.2 GW of the Belo Monte) plus 3.9 GW of small hydro plants. However, unclear regulation of the power sector remains a source of concern. Environmental issues have also delayed some of the large hydropower projects.

In 2007, amid concerns about the risk of power-supply shortages beyond 2012 unless Brazil builds new capacity, the Brazilian government announced the development of five new nuclear power plants. The government's 2030 National Energy Plan anticipates 5.3 GW of additional installed generation capacity from new nuclear plants (Angra 3 and four other plants) by 2030. Moreover, electricity produced from CHP plants, mainly from sugarcane bagasse, is to make up 11.4% of the country's electricity supply by 2030.

Biofuels supply a comparatively significant share of the energy consumed for road transport (Figure 18). As such, Brazilian transport has a relatively low CO₂ emissions intensity.¹⁹ CO₂ emissions per unit of fuel consumed in road traffic are 10% lower than the world average (2.6 versus 2.9 t CO₂ per toe).

19. See box on "Using biofuels to reduce emissions" for a more complete discussion on the advantages and limitations of using biofuels to replace oil. Note: CO₂ emissions intensity considers the tank-to-wheel emissions and assumes that the CO₂ emissions derived from the combustion of biomass are zero.

Using biofuels to reduce emissions

Compatible with many conventional engines and blendable with current transport fuels, biofuels have the potential to reduce greenhouse-gas emissions and to contribute to energy security by diversifying supply sources for transport. However, the economic, environmental and social benefits of the current generation of biofuels vary enormously.

Despite important uncertainties about their efficacy in reducing greenhouse-gas emissions, biofuels can be compared on the basis of their well-to-wheel* performance with respect to conventional fossil fuels. When ethanol is derived from corn, the well-to-wheel greenhouse-gas reduction with respect to conventional gasoline is typically in the range of 10% to 30%. The reduction is much higher for sugarcane-based ethanol from Brazil, reaching an estimated 90%. Similarly, oilseed-derived biodiesel typically leads to greenhouse-gas reductions, on a well-to-wheel basis, of 40% to 60% when compared to conventional petroleum diesel.

However, these comparisons do not take into account the possibility that changes in land use from starting biofuels production can result in one-time releases of CO₂ that could be quite large; more research is needed on the impacts of both direct and indirect land-use change and how to minimise adverse impacts.

New and emerging biofuels technologies, which can use as feedstock cellulosic residues and non-food crops such as trees and perennial grasses, have the potential to dramatically expand the scope for production of very low-carbon biofuel. However these biofuel technologies are not yet commercially operational at full scale. The most mature of these technologies are still at the demonstration stage.

For both current and second-generation biofuels, production cost is the main barrier to their larger penetration in the transport fuel mix. Without subsidies, only ethanol from sugarcane produced in Brazil has been competitive with petroleum fuels, although this may change with the higher oil prices occurring recently. The cost barrier is such that market introduction of biofuels has typically required substantial regulatory intervention and governmental support.

Currently, several countries have mandated or promoted biofuel blending standards to displace oil in domestic transport supply. In Brazil, gasoline contains 20% to 25% ethanol. Furthermore, 84% of the cars produced in Brazil in 2009 can run on either 100% ethanol or on the gasoline/ethanol blend. With recent high oil prices, most drivers are choosing to operate these vehicles mainly on ethanol. In 2006, the United States introduced mandatory standards and these were extended in 2007 under the EISA law. Blending requirements will reach 12.9 billion gallons in 2010 and 36 billion gallons by 2022 (of which more than half will be required to be advanced biofuels and about one-third cellulosic).**

Several years ago, the European Union introduced a target for biofuel use equivalent to 2% of the market share of motor fuel by 2005 (although it was not reached) and 5.75% by the end of 2010. The target for renewable energy sources in transport for 2020 is now set at 10%. The current legislation also requires "sustainability criteria" favouring biofuels derived from waste, residues, non-food cellulosic material and lignocellulosic material in order to prevent mass investment in biofuels when their use may potentially be harmful to the environment. Australia (New South Wales and Queensland) and Canada are also mandating the use of biofuels, as are a number of non-OECD countries.

For the future, it is crucial that policies foster innovation and support only the most sustainable biofuels, through a continuous monitoring and assessment of their effectiveness in reducing greenhouse-gas emissions and in providing benefits for rural workers. Suitable land availability and potential influence of biofuel production on global food prices also need to be carefully monitored, taking into account all global food, fibre and energy needs for the growing world population out to 2100. However, barriers to the commercial viability of biofuels shrink as technologies evolve and as prices of conventional fossil fuels remain high. Moreover, if well managed and co-ordinated with investments in infrastructures and agriculture, biofuels can provide an opportunity for increasing land productivity and creating economic development, particularly in rural areas.

* Well-to-wheel in life cycle analysis refers to the total emissions from the production stage to the consumption stage of the product.

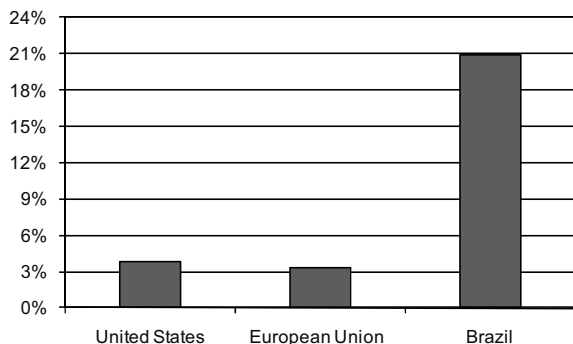
** Cellulose is an organic compound with the formula C₆H₁₀O₅ and is the structural component of the primary cell wall of green plants. Lignocellulosic biomass refers to plant biomass that is composed of cellulose, hemicellulose and lignin.

Brazil is the world's largest exporter and consumer of fuel ethanol from sugarcane.²⁰ In 2009, Brazil produced 450 000 bbl/d of ethanol, up from 410 000 bbl/d in 2008. Currently, cars that can run on either 100% ethanol or a gasoline-anhydrous ethanol

blend represent 84% of the new cars purchased in Brazil (an estimated 2.2 million in 2009) and cost the same as cars that can only run on conventional fuel.

Brazil's profile as an energy producer will be transformed in the medium term, following the discovery in November 2007 of a major deepwater oilfield in the Santos Basin. Brazil's oil and gas reserves are currently estimated at 14 billion barrels.

20. In 2005, the United States displaced Brazil as the largest ethanol producer, although mainly derived from corn and not sugarcane.

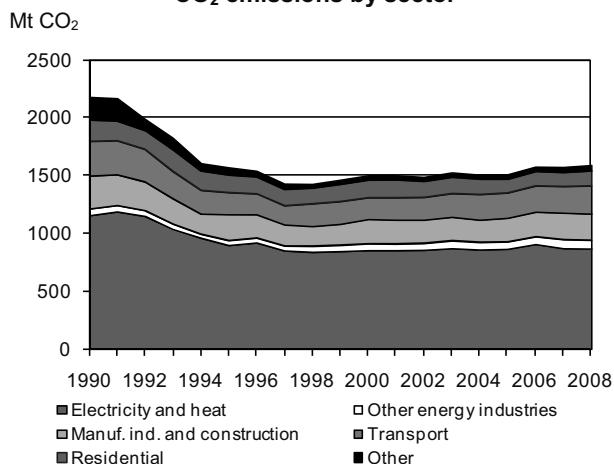
Figure 18: Share of biofuels energy in road transport (2008)

Key point: Brazil's relative consumption of biofuels far outstrips that of any other country.

Russian Federation

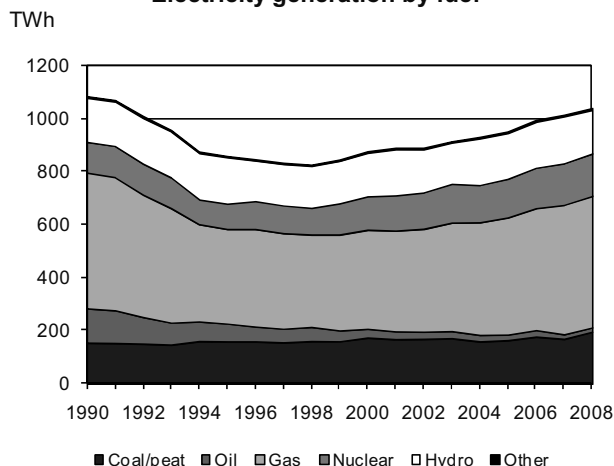
The Russian Federation is the only one of the BRICS countries where CO₂ emissions fell between 1990 and 2008, with a 27% drop over the period (Figure 19). The economic downturn after the break-up of the Former Soviet Union caused emissions to fall by 34% between 1990 and 1998. CO₂ emissions grew in 1999 and 2000 (3% a year) due to the Russian Federation's strong economic recovery, stimulated by the increase in world energy prices. CO₂ emissions remained fairly constant for the next five years. After a 4% increase in 2006, the CO₂ emissions were stable in 2007 and increased by 1% in 2008. The *WEO 2009* Reference Scenario projects that the Russian Federation CO₂ emissions will continue to increase steadily, and in 2030 will represent around 90% of the estimated 1990 level. The *WEO 2009* bases its GDP growth rate assumptions on IMF data, which is more conservative than the GDP growth outlook of the Russian government. That being said, Russian assumptions for energy efficiency gains are more bullish than *WEO 2009*, such that the end result in terms of CO₂ emissions is similar. The Russian Energy Strategy projects overall greenhouse-gas emissions in 2030 to be around 100-105% of the estimated 1990 level.

CO₂ emissions from fuel combustion in the Russian Federation have stabilised following the collapse of the Former Soviet Union. However, other sources of greenhouse gases (in particular CH₄ emissions from leaks in the oil and gas transmission/distribution system and CO₂ emissions from flaring of associated gas) represent an important share of the Russian greenhouse-gas emissions. To effectively reduce greenhouse-gas emissions from energy, these two problems would also need to be addressed (IEA, 2006a).

Figure 19. Russian Federation: CO₂ emissions by sector

Key point: CO₂ emissions in the Russian Federation have remained fairly constant over the last ten years.

In 2008, the electricity and heat generation sector represented 55% of Russian CO₂ emissions, compared to a global average of 41%. Within this sector, 48% of the electricity was generated by natural gas, 19% by coal and only 2% by oil (Figure 20).

Figure 20. Russian Federation: Electricity generation by fuel

Key point: A large portion of the Russian Federation's electricity and heat generation comes from non-emitting (nuclear and hydro) or low-emitting (natural gas) sources.

The Russian government enacted a decree in January 2009 that sets targets to increase the share of electricity generated by renewable energy sources to raise the renewable share in TPES from less than 1% to more than 4.5% by 2020. This decree could go a long way to get the Russian Federation more in line with the global average. However, to stimulate the utilisation of renewables

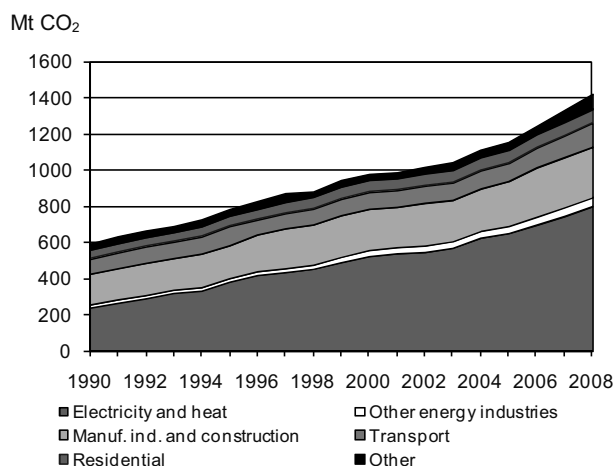
energy sources including wind, biomass, solar and re-covered methane from coal mines (coalmine methane), a range of supporting regulations will be needed, amplifying this important framework legislation.

Of the BRICS countries, in 2008, the Russian Federation had the highest CO₂ emissions per capita (11.2 t CO₂), which put it close to the average of OECD member countries (10.6 t CO₂). In terms of CO₂/GDP, the Russian Federation's economy remains CO₂ intensive with 1.0 kg CO₂ per unit of GDP, more than 2.5 times higher than the OECD average. Canada, whose geography and natural resources are comparable to those of the Russian Federation, has a carbon intensity of 0.5 kg CO₂/USD – half of the Russian Federation's level. However, IEA statistics show a reduction of the Russian Federation's energy intensity of GDP of about 5% per year since 1998. It is not clear how much this can be attributed to energy efficiency improvements as opposed to the dramatic increase in GDP due to the Russian Federation's much higher export earnings from oil and gas.

India

India emits nearly 5% of global CO₂ emissions, and emissions continue to grow. CO₂ emissions have more than doubled between 1990 and 2008. The *WEO 2009* Reference Scenario projects that CO₂ emissions in India will increase by more than 2.5 times by 2030 from 2008. A large share of these emissions is produced by the electricity and heat sector, which represented 56% of CO₂ in 2008, up from 42% in 1990. The transport sector, which was only 9% of CO₂ emissions in 2008, is growing relatively slowly compared to other sectors of the economy (Figure 21).

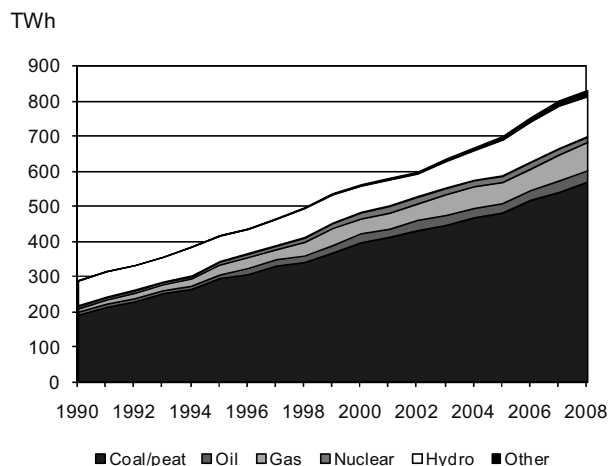
Figure 21. India: CO₂ emissions by sector



Key point: The bulk of CO₂ emissions in India comes from the electricity and heat generation sector and its share is continuing to grow.

In 2008, 69% of electricity in India came from coal, another 10% from natural gas and 4% from oil (Figure 22). The share of fossil fuels in the generation mix grew from 73% in 1990 to 85% in 2002. The share of fossil fuels has declined steadily since then, falling to 81% in 2007, although increasing back up to 83% in 2008. Although electricity produced from hydro has actually risen during this period, the share fell from 25% in 1990 to 14% in 2008. India is promoting the addition of other renewable power sources into its generation mix and had an installed capacity of 17 GW of renewable energy sources on 30 June 2010. Under its National Action Plan on Climate Change, India plans to install 20 GW of solar power by 2020. With an installed wind capacity of 12 GW in June 2010,²¹ India has the world's fifth-largest installed capacity of wind power.

Figure 22. India: Electricity generation by fuel



Key point: About two-thirds of India's electricity comes from coal.

Of the BRICS countries, India has the lowest CO₂ emissions per capita (1.3 t CO₂ in 2008), about one-fourth that of the world average. However, due to the recent large increases in emissions, the Indian ratio is more than 1.5 times that of its ratio in 1990 and will continue to grow. India's per capita emissions in 2030 will, however, still be well below those in the OECD member countries today.

In terms of CO₂/GDP, India has continuously improved the efficiency of its economy and reduced the CO₂ emissions per unit of GDP by 21% between 1990 and 2008. India aims to further reduce emissions intensity of GDP by 20-25% by 2020 compared with the 2005 level.²²

21. According to the website of the Ministry of New and Renewable Energy of the Government of India. See www.mnre.gov.in.

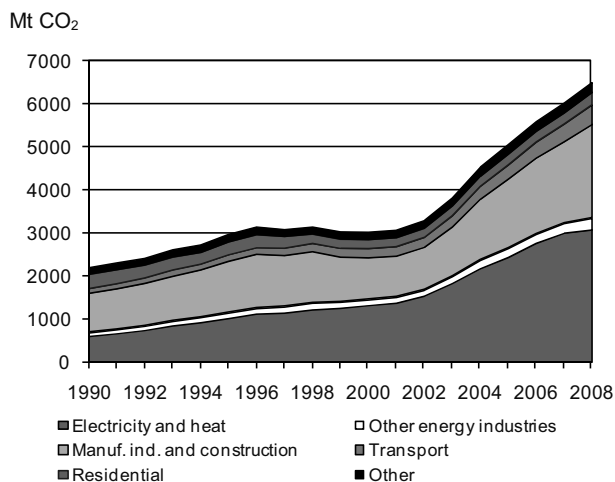
22. As per its stated goal in association with the Copenhagen Accord.

China

With more than six billion tonnes of CO₂ in 2008 (22% of global emissions), Chinese emissions surpass by far those of the other BRICS countries – in fact, China overtook the United States in 2007 as the world's largest annual emitter of energy-related CO₂, although in cumulative and per capita terms the United States will remain the largest for many years to come. Chinese CO₂ emissions have almost tripled between 1990 and 2008. The increases were especially large in the last six years (16% in 2003, 19% in 2004, 11% in both 2005 and 2006, and 8% in 2007 and 2008). The *WEO 2009* Reference Scenario projects that the growth in Chinese emissions will slow down to 2.9% per year up to 2030. Even with this slower growth, emissions in 2030 will be almost twice current levels, although policies are being considered that would reduce such growth considerably.

Since 1990, the electricity and heat generation sector grew the most, representing 48% of Chinese CO₂ emissions in 2008 (Figure 23). The transport sector also grew rapidly, but from a much smaller base, representing 7% in 2008. The *WEO 2009* Reference Scenario projects that the transport sector will continue to grow, rising to 12% in 2030, as switching to low- or zero-carbon energy sources is much more difficult in transport than in other sectors.

Figure 23. China: CO₂ emissions by sector

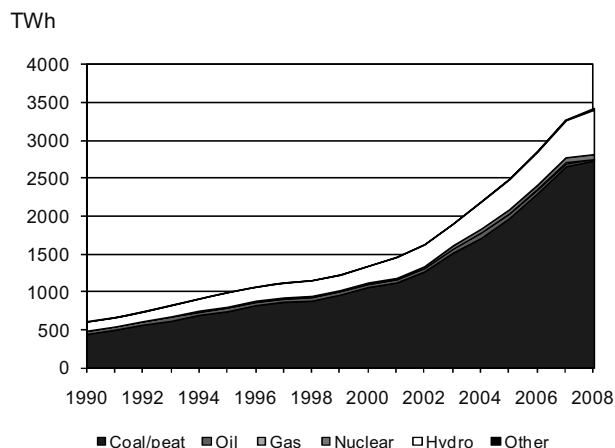


Key point: For the last six years, and in line with vigorous economic expansion, China showed dramatic growth in CO₂ emissions from electricity and heat generation.

Chinese demand for electricity was the largest driver of the rise in emissions. The rate of capacity additions

peaked in 2006, but in 2009 China's installed capacity rose by a net 81 GW (China Electricity Council, 2010), slightly more than the total installed capacity of South Korea. At the same time, it closed over 26 GW of small, inefficient fossil fuel-fired plants (Guobao, 2010), about the size of Ireland and Switzerland's combined installed capacity. Coal played a major role in supporting the growing demand for electricity generation (Figure 24). Nearly all of the 1990-2008 emissions growth from power generation derived from coal, although hydro increased its share in 2008 from 15% to 17%.

Figure 24. China: Electricity generation by fuel



Key point: Coal dominates China's electricity generation and its very fast growth, although hydro increased its share in 2008.

In the past few decades, China had experienced a rapid decoupling of energy consumption and CO₂ emissions from economic growth. During the 1980s, the central government in China reduced industrial energy intensity by establishing standards and quotas for the energy supplied to firms and had the authority to shut off the power supply when enterprises exceeded their limits (Lin, 2005). However, as the Chinese economy has moved towards an open-market operation, investment in energy conservation as a percentage of total energy investment gradually declined (IEA, 2006b).

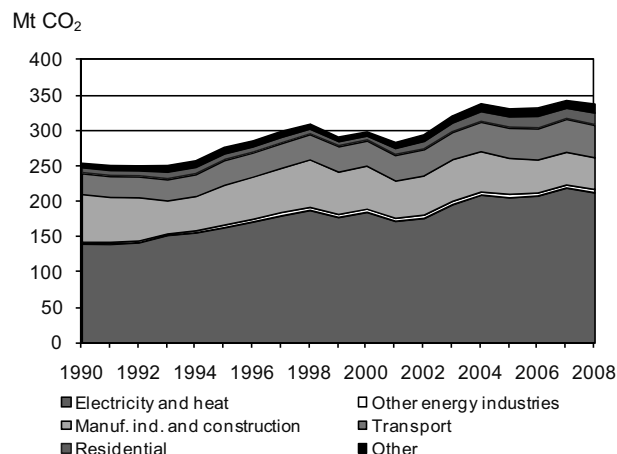
The rapid expansion since 2003 of heavy industrial sectors to serve huge infrastructure investments and burgeoning demand for Chinese products from domestic and overseas consumers pushed up demand for fossil fuels. As a result, CO₂ emissions per unit of GDP actually rose from 2003 to 2005. Still, the 2008 TPES/GDP is 58% less than in 1990, and a recent push by the government to reduce energy intensity has

helped to resume the long-term intensity decline, albeit at a much slower rate than in the past. The increasing share of coal in power generation, however, despite some of the world's largest investments in renewables, means that a small decline in energy intensity may still be paired with an increase in emissions intensity, as was the case in 2003 and 2004. Although per capita emissions in China in 2008 were only about one-half that of the OECD average, they have more than doubled since 1990, with the largest increases occurring in the last six years. The country is seeking ways to limit growth in CO₂ emissions, though, and has announced regional pilot projects to find practical ways of implementing the national pledge, announced in late 2009 under the Copenhagen Accord, to reduce CO₂ emissions per unit of GDP by 40% to 45% in 2020 compared to 2005.

South Africa

South Africa currently relies heavily on fossil fuels as a primary energy source (87% in 2008); with coal providing most of it. Although South Africa accounted for 38% of CO₂ emissions from fuel combustion in Africa in 2008, it represented only 1.1% of the global total. The electricity and heat sector produced 63% of South Africa's CO₂ emissions in 2008 (Figure 25).

Figure 25. South Africa: CO₂ emissions by sector

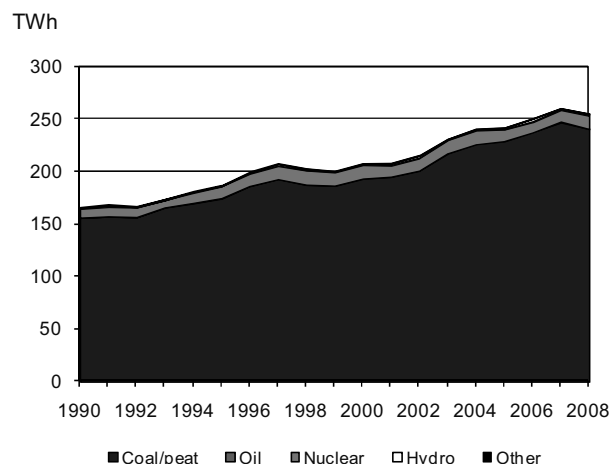


Key point: The largest share of CO₂ emissions in South Africa comes from the electricity and heat sector, but growth remains moderate compared to some of the other BRICS countries.

Coal dominates the South African energy system, accounting for 71% of primary energy supply and nearly one-quarter of final energy consumption. In 2008, South Africa generated 94% of its electricity using coal (Figure 26). In South Africa's Long-Term

Mitigation Scenarios (LTMS), emissions would quadruple between 2003 and 2050 in the absence of radical energy-choice changes, dominated by energy-related emissions, notably from the electricity, industrial and transport sectors. One of the major climate change mitigation issues facing South Africa is to reduce its greenhouse-gas emissions from the power sector, primarily by reducing reliance on coal. South Africa is already taking steps to expand the use of both renewable and nuclear energy, to explore the use of carbon capture and storage (CCS) technologies, and to reduce energy demand through a nation-wide energy efficiency programme. South Africa's public utility Eskom also has a target to reduce dependence on conventional coal to 70% by 2025 and reduce greenhouse-gas emissions in absolute terms by 2050, as well as to provide at least 1 600 MW in renewable capacity by 2025 (mostly large-scale solar and wind).

Figure 26. South Africa: Electricity generation by fuel



Key point: South Africa relies almost solely on coal to produce its electricity.

Prices of commercial forms of energy in South Africa are, in general, quite low by international standards. Given the relatively lower rate of electrification (about 88% in urban areas and only 55% in rural areas in 2008), the direct use of commercial forms of energy by households is more limited. Biomass (especially wood) dominates energy use by rural households, generating health and safety problems as well as concerns about the sustainability of wood supplies. Over the last 18 years, per capita CO₂ emissions in South Africa have remained fairly constant while emissions per unit of GDP have decreased by 20%. South Africa aims to reduce greenhouse-gas emissions 34% below its business-as-usual (BAU) growth trajectory by 2020, increasing to 42% below the BAU trajectory by 2025.

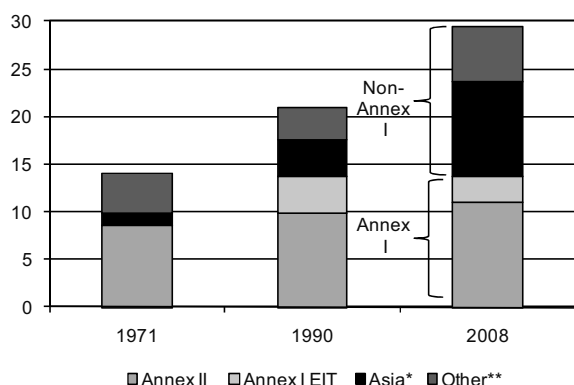
Sustainable energy use requires global engagement

Trends in CO₂ emissions from fuel combustion illustrate the need for all countries to shape a more sustainable energy future. Special emphasis should first be on the industrialised nations that have the highest per capita incomes and that are responsible for the bulk of cumulative emissions. However, with the rapidly growing energy demand of developing countries, it is important that they also strive to use energy in a sustainable way. *ETP 2010* shows that enhancing energy efficiency and reducing the carbon intensity of energy supply, which is largely reliant on fossil fuels, are both fundamental steps towards a global low-carbon energy system.

Between 1971 and 2008, global CO₂ emissions doubled. However, two important turning points occurred in 2008: for the first time emissions from non-Annex I countries surpassed those of the Annex I countries and the emission levels of the Annex I countries were below 1990 levels (Figure 27) due to the economic contraction arising from the recession and high oil prices in 2008.

Figure 27. Trends in regional CO₂ emissions

Gt CO₂



* Asia includes Korea and excludes Japan (which is included in Annex II).

** Other includes Africa, Latin America, Middle East, non-Annex I EIT, Turkey, international bunkers, and, for 1971, Annex I EIT.

Key points: In 2008, CO₂ emissions from Annex I countries fell back to 1990 levels, while emissions from non-Annex I countries continued to grow. Also for the first time in 2008, the CO₂ emissions from non-Annex I countries surpassed those of Annex I countries.

The share of CO₂ emissions in Annex I countries to the UNFCCC (the sum of Annex II and Annex I EIT) progressively shrank (61% in 1971, 47% in 1990 and

37% in 2008), as emissions in developing countries (led by Asia) increased at a much faster rate. The growth in Asian emissions reflects a striking rate of economic development, particularly within China and India. Between 1990 and 2008, CO₂ emissions rose by 124% for non-Annex I countries as a whole and more than doubled for Asia. This is in contrast to the reduction in emissions to 1990 levels (-0.007% growth between 1990 and 2008) which occurred in the Annex I countries.

Emission trends within Annex I countries were very different. Emissions of CO₂ in Annex II countries in 2008 were actually 12% higher than in 1990. This growth was offset by emission reductions in the Annex I EIT countries. Emissions from the EIT countries followed a peculiar path due to a rapid decline in industrial productivity subsequent to the 1989 collapse of their centrally planned economies. Between 1990 and 2000, the EIT emissions declined by 36%. Emissions in the Former Soviet Union alone fell by over 1.4 Gt CO₂ (39%) between 1990 and 2000. However, this trend was reversed in recent years.

Since the Industrial Revolution, the bulk of annual CO₂ emissions have originated from industrialised countries. However, this long period of dominance will soon end given the size of some of the developing economies and the growth in their energy needs. Effective emissions mitigation will require all countries, regardless of energy demand and infrastructure, to use energy in a sustainable manner.

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PART I:

METHODOLOGY

1. IEA EMISSIONS ESTIMATES

The estimates of CO₂ emissions from fuel combustion presented in this publication are calculated using the IEA energy data¹ and the default methods and emission factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, IPCC/OECD/IEA, Paris, 1997 (*1996 IPCC Guidelines*).

Although the IPCC approved the *2006 Guidelines* at the 25th session of the IPCC in April 2006 in Mauritius, most countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines*.

The IEA Secretariat reviews its energy databases each year. In the light of new assessments, important revisions may be made to the time series of individual countries. Therefore, certain data in this publication may have been revised with respect to previous editions.

Inventory quality

The *IPCC Guidelines* allow Parties under the UNFCCC to prepare and periodically update national inventories that are accurate, complete, comparable and transparent. Inventory quality is an important issue since countries are now implementing legally-binding commitments.

One way to assess inventory quality is to do comparisons among inventories, methodologies and input data. The *IPCC Guidelines* recommend that countries which have used a detailed Sectoral Approach for CO₂ emissions from energy combustion also use the Reference Approach for verification purposes. This will identify areas where a full accounting of emissions may not have been made (see Chapter 5, *IPCC methodologies*).

Reference Approach vs. Sectoral Approach

The Reference Approach and the Sectoral Approach often give different results because the Reference Approach is a top-down approach using a country's energy supply data and has no detailed information on how the individual fuels are used in each sector.

The Reference Approach provides estimates of CO₂ to compare with estimates derived using a Sectoral Approach. Theoretically, it indicates an upper bound to the Sectoral Approach "1A fuel combustion", because some of the carbon in the fuel is not combusted but will be emitted as fugitive emissions (as leakage or evaporation in the production and/or transformation stage).

Calculating CO₂ emissions inventories with the two approaches can lead to different results for some countries. In general the gap between the two approaches is relatively small (5 per cent or less) when compared to the total carbon flows involved. In cases where 1) fugitive emissions are proportional to the mass flows entering production and/or transformation processes, 2) stock changes at the level of the final consumer are not significant and 3) statistical differences in the energy data are limited, the Reference Approach and the Sectoral Approach should lead to similar evaluations of the CO₂ emissions trends.

When significant discrepancies and/or large time-series deviations do occur, they may be due to various reasons such as:

Large statistical differences between the energy supply and the energy consumption in the basic energy data. Statistical differences arise from the collection of data from different parts of the fuel flow from its supply origins to the various stages of downstream conversion and use. They are a normal part of a fuel

1. Published in *Energy Statistics of OECD Countries, Energy Balances of OECD Countries, Energy Statistics of Non-OECD Countries* and *Energy Balances of Non-OECD Countries*, IEA, Paris, 2010.

balance. Large random statistical differences must always be examined to determine the reason for the difference, but equally importantly smaller statistical differences which systematically show an excess of supply over demand (or vice versa) should be pursued.

Significant mass imbalances between crude oil and other feedstock entering refineries and the (gross) petroleum products manufactured.

The use of aggregate net calorific and carbon content values for primary fuels which are converted rather than combusted. For example, it may appear that there is not conservation of energy or carbon depending on the calorific value and/or the carbon content chosen for the crude oil entering refineries and for the mix of products produced from the refinery for a particular year. This may cause an overestimation or underestimation of the emissions associated with the Reference Approach.

The misallocation of the quantities of fuels used for conversion into derived products (other than power or heat) **or quantities combusted in the energy sector.** When reconciling differences between the Reference Approach and a Sectoral Approach it is important to ensure that the quantities reported in the transformation and energy sectors (e.g. for coke ovens) reflect correctly the quantities used for conversion and for fuel use, respectively, and that no misallocation has occurred. Note that the quantities of fuels converted to derived products should have been reported in the transformation sector of the energy balance. If any derived products are used to fuel the conversion process, the amounts involved should have been reported in the energy sector of the energy balance. In a Sectoral Approach the inputs to the transformation sector should not be included in the activity data used to estimate emissions.

Missing information on certain transformation outputs. Emissions from combustion of secondary fuels produced in integrated processes (for example, coke oven gas) may be overlooked in a Tier 1 Sectoral Approach if data are poor or unavailable. The use of secondary fuels (the output from the transformation process) should be included in the Sectoral Approach. Failure to do so will result in an underestimation of the Sectoral Approach.

Simplifications in the Reference Approach. Certain quantities of carbon should be included in the Reference Approach because their emissions fall under fuel combustion. These quantities have been excluded where the flows are small or not represented by a major statistic available within energy data. Examples of quantities not accounted for in the Reference

Approach include lubricants used in two-stroke engines, blast furnace and other by-product gases which are used for fuel combustion outside their source category of production and combustion of waxed products in waste plants with heat recovery. On the other hand, certain flows of carbon should be excluded from the Reference Approach, but for reasons similar to the above no practical means can be found to exclude them without over complicating the calculations. These include coals and other hydrocarbons injected into blast furnaces as well as cokes used as reductants in the manufacture of inorganic chemicals. These simplifications will determine discrepancies between the Reference Approach and a Sectoral Approach. If data are available, the magnitudes of these effects can be estimated.

Missing information on stock changes that may occur at the final consumer level. The relevance of consumer stocks depends on the method used for the Sectoral Approach. If delivery figures are used (this is often the case) then changes in consumers' stocks are irrelevant. If, however, the Sectoral Approach is using actual consumption of the fuel, then this could cause either an overestimation or an underestimation of the Reference Approach.

High distribution losses or unrecorded consumption for gas may mean that the emissions are overestimated by the Reference Approach or underestimated by the Sectoral Approach.

The treatment of transfers and reclassifications of energy products may cause a difference in the Sectoral Approach estimation since different net calorific values and emission factors may be used depending on how the fuel is classified.

Differences between IEA estimates and UNFCCC submissions

It is possible to use the IEA CO₂ estimates for comparison with the greenhouse-gas inventories reported by countries to the UNFCCC Secretariat. In this way, problems in methods, input data or emission factors may become apparent. However, care should be used in interpreting the results of any comparison since the IEA estimates may differ from a country's official submission for many reasons.

A recent comparison of the IEA estimates with the inventories submitted to the UNFCCC showed that for most Annex II countries, the two calculations were

within 5%. For some EIT and non-Annex I countries, differences between the IEA estimates and national inventories were larger. In some of the countries the underlying energy data were different; suggesting that more work is needed on the collecting and reporting of energy statistics for those countries.

Some countries have incorrectly defined bunkers as fuel used abroad by their own ships and planes. Still other countries have made calculation errors for carbon oxidation or have included international bunkers in their totals. Since all of the above will affect the national totals of CO₂ emissions from fuel combustion, a systematic comparison with the IEA estimates would allow countries to verify their calculations and produce more internationally comparable inventories.

In addition, the main bias in the energy data and emission factors will probably be systematic and not random. This means that the emission trends will usually be more reliable than the absolute emission levels. By comparing trends in the IEA estimates with trends in emissions as reported to the UNFCCC, it should be possible to identify definition problems or changes in the calculations, which were not reflected in the base year.

For many reasons the IEA estimates may differ from the numbers that a country submits to the UNFCCC, even if a country has accounted for all of its energy use and correctly applied the *IPCC Guidelines*. No attempt has been made to quantify the effects of these differences. In most cases these differences will be relatively small. Some of the reasons for these differences are:

- **The IEA uses a Tier 1 method.**

The IEA uses a Tier 1 Sectoral Approach based on the *1996 IPCC Guidelines*. Countries may be using a Tier 2 or Tier 3 method that takes into account different technologies.

- **The IEA is using the 1996 IPCC Guidelines.**

The IEA is still using the *1996 IPCC Guidelines*. Some countries may have already started using the *2006 IPCC Guidelines*.

- **Energy activity data are extracted from the IEA energy balances and may differ from those used for the UNFCCC calculations.**

Countries often have several “official” sources of data such as a Ministry, a Central Bureau of Statistics, a nationalised electricity company, etc. Data can also be collected from the energy suppliers, the energy consumers or customs statistics. The IEA Secretariat tries to collect the most accurate data, but does not necessarily

have access to the complete data set that may be available to national experts calculating emission inventories for the UNFCCC. In addition to different sources, the methodology used by the national bodies providing the data to the IEA and to the UNFCCC may differ. For example, general surveys, specific surveys, questionnaires, estimations, combined methods and classifications of data used in national statistics and in their subsequent reclassification according to international standards may result in different series.

- **The IEA uses average net calorific values.**

The IEA uses an average net calorific value (NCV) for each secondary oil product. These NCVs are region-specific and constant over time. Country-specific NCVs that can vary over time are used for NGL, refinery feedstocks and additives. Crude oil NCVs are further split into production, imports, exports and average. Different coal types have specific NCVs for production, imports, exports, inputs to main activity power plants and coal used in coke ovens, blast furnaces and industry, and can vary over time for each country.

Country experts may have the possibility of going into much more detail when calculating the heat content of the fuels. This in turn could produce different values than the IEA.

- **The IEA uses average emission factors.**

The IEA uses the default emission factors which are given in the *1996 IPCC Guidelines*. Country experts may have better information available.

- **The IEA does not have detailed information for the stored carbon calculation.**

The IEA does not have complete information on the non-energy use of fuels. The amount of carbon stored is estimated using the default values given in the *1996 IPCC Guidelines*. For “other products” in the stored carbon calculation, the IEA assumes that 100% of kerosene, white spirit and petroleum coke that is reported as non-energy use in the energy balance is also stored. Country experts calculating the inventories may have more detailed information.

- **The IEA cannot allocate emissions from auto-producers into the end-use sectors.**

The *1996 IPCC Guidelines* recommend that emissions from autoproduction should be included with emissions from other fuel use by end-consumers. At the same time, the emissions from the autoproduction of electricity and heat should be excluded from the energy transformation source category to avoid double counting. The IEA is not able to allocate the fuel use

from autoproducers between the industrial and “other” sectors. Therefore, this publication shows a category called “Unallocated autoproducers”. However, this should not affect the total emissions for a country.

- **Military emissions may be treated differently.**

According to the *1996 IPCC Guidelines*, military emissions should be reported in Source/Sink Category 1 A 5, *Other (not elsewhere specified)*. Previously, the IEA questionnaires requested that warships be included in international marine bunkers and that the military use of aviation fuels be included in domestic air. All other military use should have been reported in *non-specified other sector*.

At the IEA/Eurostat/UNECE Energy Statistics Working Group meeting (Paris, November 2004), participants decided to harmonise the definitions used to collect energy data on the joint IEA/Eurostat/UNECE questionnaires with those used by the IPCC to report greenhouse-gas inventories. As a result, starting in the 2006 edition of this publication, all military consumption should be reported in non-specified other sectors. Sea-going versus coastal is no longer a criterion for splitting international and domestic navigation. For more information on the changes, please consult the Energy Statistics Working Group meeting report on our website at www.iea.org/Textbase/stats/questionnaire/index.asp.

However, it is not clear whether countries are reporting on the new basis, and if they are, whether they will be able to revise their historical data. The IEA has found that in practice most countries consider information on military consumption as confidential and therefore either combine it with other information or do not include it at all.

- **The IEA estimates include emissions from coke inputs into blast furnaces. Countries may have included these emissions in the IPCC category industrial processes.**

National greenhouse-gas inventories submitted to the UNFCCC divide emissions according to source categories. Two of these IPCC Source/Sink Categories are energy and industrial processes. The IPCC Reference Approach estimates national emissions from fuel combustion based on the supply of fuel to a country and by implication includes emissions from coke inputs to blast furnaces in the energy sector. However, within detailed sectoral calculations certain non-energy processes can be distinguished. In the reduction of iron in a blast furnace through the combustion of coke, the primary purpose of coke oxidation is to produce pig iron and the emissions can be considered as an industrial process. Care must be taken not to

double count these emissions in both energy and industrial processes. The IEA estimates of emissions from fuel combustion in this publication include the coke inputs to blast furnaces.

- **The units may be different.**

The *1996 IPCC Guidelines* and the *UNFCCC Reporting Guidelines on Annual Inventories* both ask that CO₂ emissions be reported in Gg of CO₂. A million tonnes of CO₂ is equal to 1 000 Gg of CO₂, so to compare the numbers in this publication with national inventories expressed in Gg, the IEA emissions must be multiplied by 1 000.

Key sources

In May 2000, the IPCC Plenary accepted the report on *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*. The report provides good practice guidance to assist countries in determining their key source categories. By identifying these key sources in the national inventory, inventory agencies can prioritise their efforts and improve their overall estimates.

The *Good Practice Guidance* identifies a key source category as one that is prioritised within the national inventory system because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both.

For a more complete description of the IPCC methodology for determining key sources, see Chapter 5, IPCC methodologies.

In the *Good Practice Guidance*, the recommendation for choosing the level of the key source analysis is to “disaggregate to the level where emission factors are distinguished. In most inventories, this will be the main fuel types. If emission factors are determined independently for some sub-source categories, these should be distinguished in the analysis.”

Since the emission estimates in this publication were produced using the default emission factors from the *1996 IPCC Guidelines*, this means that the fuel combustion categories would have been divided into:

- stationary combustion – coal
- stationary combustion – oil
- stationary combustion – gas
- mobile combustion – coal
- mobile combustion – oil
- mobile combustion – gas

Clearly this level of aggregation is not particularly useful in identifying where additional work is needed in refining the inventory. It does not take into account the possibility of improving data collection methods, improving emission factors or using a higher tier calculation for certain key sectors within the energy from fuel combustion source category. For this reason the IEA has disaggregated the key source analysis to the same level of detail presented in the country tables of this publication. For each country, the 11 largest sources, split by coal, oil, gas and other, are shown in the key sources table.

To calculate the level assessment, the IEA has started with the CO₂ emissions from fuel combustion as calculated by the IEA. To supplement this, where possible, the IEA has used the emissions that were submitted by the Annex I Parties to the UNFCCC in the 2010 submission of the Common Reporting Format for CO₂ (only fugitive), CH₄, N₂O, HFCs, PFCs and SF₆, not taking into account CO₂ emissions/removals from land use, land use change and forestry.²

For the non-Annex I Parties, CO₂ emissions from fuel combustion were from the IEA and the rest of the 2008 emissions were estimated by PBL.

The cumulative contribution only includes the 11 largest key sources of CO₂ from fuel combustion. As a result, in most cases the cumulative contribution will not be 95% as recommended in the *Good Practice Guidance* and key sources from fugitive emissions, industrial processes, solvents, agriculture and waste will not be shown. The percentage of CO₂ emissions from fuel combustion in total greenhouse-gas emissions has been included as a memo item at the bottom of the table.

Notes on tables and graphs

Table of CO₂ emissions by sector

Row 1: *Sectoral Approach* contains total CO₂ emissions from fuel combustion as calculated using the IPCC Tier 1 Sectoral Approach and corresponds to IPCC Source/Sink Category 1 A. Emissions calculated using a Sectoral Approach include emissions only when the fuel is actually combusted.

Row 2: *Main activity producer electricity and heat* contains the sum of emissions from main activity producer electricity generation, combined heat and power generation and heat plants. Main activity producers (formerly known as public utilities) are defined as those undertakings whose primary activity is to supply the public. They may be publicly or privately owned. Emissions from own on-site use of fuel are included. This corresponds to IPCC Source/Sink Category 1 A 1 a.

Row 3: *Unallocated autoproducers* contains the emissions from the generation of electricity and/or heat by autoproducers. Autoproducers are defined as undertakings that generate electricity and/or heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned. In the *1996 IPCC Guidelines*, these emissions would normally be distributed between industry, transport and “other” sectors.

Row 4: *Other energy industries* contains emissions from fuel combusted in oil refineries, for the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries. This corresponds to the IPCC Source/Sink Categories 1 A 1 b and 1 A 1 c. According to the *1996 IPCC Guidelines*, emissions from coke inputs to blast furnaces can either be counted here or in the industrial processes source/sink category. Within detailed sectoral calculations, certain non-energy processes can be distinguished. In the reduction of iron in a blast furnace through the combustion of coke, the primary purpose of the coke oxidation is to produce pig iron and the emissions can be considered as an industrial process. Care must be taken not to double count these emissions in both energy and industrial processes. In the IEA estimations, these emissions have been included in this category.

Row 5: *Manufacturing industries and construction* contains the emissions from combustion of fuels in industry. The IPCC Source/Sink Category 1 A 2 includes these emissions. However, in the *1996 IPCC Guidelines*, the IPCC category also includes emissions from industry autoproducers that generate electricity and/or heat. The IEA data are not collected in a way that allows the energy consumption to be split by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*. *Manufacturing industries and construction* also includes emissions from coke inputs into blast furnaces, which may be reported either in the transformation sector, the industry sector or the separate IPCC Source/Sink Category 2, industrial processes.

2. As recommended in the *Good Practice Guidance*.

Row 6: *Transport* contains emissions from the combustion of fuel for all transport activity, regardless of the sector, except for international marine bunkers and international aviation. This includes domestic aviation, domestic navigation, road, rail and pipeline transport, and corresponds to IPCC Source/Sink Category 1 A 3. In addition, the IEA data are not collected in a way that allows the autoproducer consumption to be split by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*.

Note: Starting in the 2006 edition, military consumption previously included in *domestic aviation* and in *road* should be in *non-specified other sectors*. See the section on Differences between IEA estimates and UNFCCC submissions, for further details.

Row 7: *Road* contains the emissions arising from fuel use in road vehicles, including the use of agricultural vehicles on highways. This corresponds to the IPCC Source/Sink Category 1 A 3 b.

Row 8: *Other Sectors* contains the emissions from commercial/institutional activities, agriculture/forestry, fishing, residential and other emissions not specified elsewhere that are included in the IPCC Source/Sink Categories 1 A 4 and 1 A 5. In the *1996 IPCC Guidelines*, the category also includes emissions from autoproducers in the commercial/residential/agricultural sectors that generate electricity and/or heat. The IEA data are not collected in a way that allows the energy consumption to be split by specific end-use and therefore, this publication shows autoproducers as a separate item. See Row 3, *Unallocated autoproducers*.

Row 9: *Residential* contains all emissions from fuel combustion in households. This corresponds to IPCC Source/Sink Category 1 A 4 b.

Row 10: *Reference Approach* contains total CO₂ emissions from fuel combustion as calculated using the IPCC Reference Approach. The Reference Approach is based on the supply of energy in a country and as a result, all inventories calculated using this method include fugitive emissions from energy transformation (e.g. from oil refineries) which are normally included in Category 1 B. For this reason, Reference Approach estimates are likely to overestimate national CO₂ emissions. In these tables, the difference between the Sectoral Approach and the Reference Approach includes statistical differences, product transfers, transformation losses and distribution losses.

Row 11: *Differences due to losses and/or transformation* contains emissions that result from the transformation of energy from a primary fuel to a secondary or tertiary fuel. Included here are solid fuel transformation, oil refineries, gas works and other fuel transformation industries. These emissions are normally reported as fugitive emissions in the IPCC Source/Sink Category 1 B, but will be included in 1 A in inventories that are calculated using the IPCC Reference Approach. Theoretically, this category should show relatively small emissions representing the loss of carbon by other ways than combustion, such as evaporation or leakage.

Negative emissions for one product and positive emissions for another product would imply a change in the classification of the emission source as a result of an energy transformation between coal and gas, between coal and oil, etc. In practice, however, it often proves difficult to correctly account for all inputs and outputs in energy transformation industries, and to separate energy that is transformed from energy that is combusted. Therefore, the row *Differences due to losses and/or transformation* sometimes shows quite large positive emissions or even negative ones due to problems in the underlying energy data.

Row 12: *Statistical differences* can be due to unexplained discrepancies in the underlying energy data. They can also be caused by differences between emissions calculated using the Reference Approach and the Sectoral Approach.

Row 13: *International marine bunkers* contains emissions from fuels burned by ships of all flags that are engaged in international navigation. The international navigation may take place at sea, on inland lakes and waterways, and in coastal waters. Consumption by ships engaged in domestic navigation is excluded. The domestic/international split is determined on the basis of port of departure and port of arrival, and not by the flag or nationality of the ship. Consumption by fishing vessels and by military forces is also excluded. Emissions from international marine bunkers should be excluded from the national totals. This corresponds to IPCC Source/Sink Category 1 A 3 d i.

Row 14: *International aviation* contains emissions from fuels used by aircraft for international aviation. Fuels used by airlines for their road vehicles are excluded. The domestic/international split should be determined on the basis of departure and landing locations and not by the nationality of the airline.

Emissions from international aviation should be excluded from the national totals. This corresponds to IPCC Source/Sink Category 1 A 3 a i.

Figures 2 and 3: Emissions by sector

The sector *Other* includes emissions from commercial and public services, agriculture/forestry and fishing. Emissions from unallocated autoproducers are included in *Electricity and heat*.

Figure 5: Electricity generation by fuel

The product *Other* includes geothermal, solar, wind, combustible renewables and waste, etc. Electricity generation includes both main activity producer and autoproducer electricity.

Country notes

Cuba

International marine bunkers for residual fuel oil in the period 1971-1983 were estimated on the basis of 1984 figures and the data reported as domestic navigation in the energy balance.

Cyprus

Note by Turkey:

The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the “Cyprus” issue.

Note by all the European Union Member States of the OECD and the European Commission:

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this report relates to the area under the effective control of the Government of the Republic of Cyprus.

Estonia

The data reported as lignite in the energy balance have been considered as oil shale for the calculation of CO₂ emissions.

France

The methodology for calculating main activity electricity and heat production from gas changed in 2000.

Israel

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Italy

Prior to 1990, gas use in commercial/public services was included in residential.

Japan

For four consecutive years, the IEA received revisions from the Japanese Administration. The first set of revisions received in 2004 increased the 1990 supply by 5% for coal, 2% for natural gas and 0.7% for oil compared to the previous data. This led to an increase of 2.5% in 1990 CO₂ emissions calculated using the Reference Approach while the Sectoral Approach remained fairly constant. For the 2006 edition, the IEA received revisions to the coal and oil data which had a significant impact on both the energy data and the CO₂ emissions. The most significant revisions occurred for coke oven coke, naphtha, blast furnace gas and petroleum coke. These revisions affected consumption rather than supply in the years concerned. As a result, the sectoral approach CO₂ emissions increased for all the years, however at different rates. For example, the sectoral approach CO₂ emissions for 1990 were 4.6% higher than those calculated for the 2005 edition while the 2003 emissions were 1.1% higher than those of the previous edition. Due to the impact these successive revisions have had on the final energy balance as well as on CO₂ emissions, the IEA was in close contact with the Japanese Administration to better understand the reasons behind these changes. These changes are mainly due to the Government of Japan's efforts to improve the input-output balances in the production of oil products and coal products in response to inquiries from the UNFCCC Secretariat. To cope with this issue, the Japanese Administration established a working group in March 2004. The working group completed its work in April 2006. Many of its conclusions were incorporated in the 2006 edition but some further

revisions to the time series (especially in industry and other sectors) were submitted for the 2007 edition.

Netherlands Antilles

Prior to 1992, the Reference Approach overstates emissions since data for lubricants and bitumen (which store carbon) are not available.

Norway

Discrepancies between Reference and Sectoral Approach estimates and the difference in the resulting growth rates arise from statistical differences between supply and consumption data for oil and natural gas. For Norway, supply of these fuels is the residual of two very large and opposite terms, production and exports.

Switzerland

The sectoral breakdown for gas/diesel oil used in the residential sector before 1978 was estimated on the basis of commercial and residential consumption in 1978 and the data reported as commercial consumption in the energy balance in previous years.

United Kingdom

For reasons of confidentiality, gas for main activity electricity is included in autoproducers for 1990.

Vietnam

A detailed sectoral breakdown is available starting in 1980.

2. UNITS AND CONVERSIONS

General conversion factors for energy

To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	multiply by:				
terajoule (TJ)	1	238.8	2.388×10^{-5}	947.8	0.2778
gigacalorie (Gcal)	4.1868×10^{-3}	1	10^{-7}	3.968	1.163×10^{-3}
million tonne of oil equivalent (Mtoe)	4.1868×10^4	10^7	1	3.968×10^7	11630
million British thermal unit (MBtu)	1.0551×10^{-3}	0.252	2.52×10^{-8}	1	2.931×10^{-4}
gigawatt hour (GWh)	3.6	860	8.6×10^{-5}	3412	1

Conversion factors for mass

To:	kg	t	lt	st	lb
From:	multiply by:				
kilogramme (kg)	1	0.001	9.84×10^{-4}	1.102×10^{-3}	2.2046
tonne (t)	1000	1	0.984	1.1023	2204.6
long ton (lt)	1016	1.016	1	1.120	2240.0
short ton (st)	907.2	0.9072	0.893	1	2000.0
pound (lb)	0.454	4.54×10^{-4}	4.46×10^{-4}	5.0×10^{-4}	1

Conversion factors for volume

To:	gal U.S.	gal U.K.	bbl	ft ³	l	m ³
From:	multiply by:					
U.S. gallon (gal)	1	0.8327	0.02381	0.1337	3.785	0.0038
U.K. gallon (gal)	1.201	1	0.02859	0.1605	4.546	0.0045
barrel (bbl)	42.0	34.97	1	5.615	159.0	0.159
cubic foot (ft ³)	7.48	6.229	0.1781	1	28.3	0.0283
litre (l)	0.2642	0.220	0.0063	0.0353	1	0.001
cubic metre (m ³)	264.2	220.0	6.289	35.3147	1000.0	1

Decimal prefixes

10 ¹	deca (da)	10 ⁻¹	deci (d)
10 ²	hecto (h)	10 ⁻²	centi (c)
10 ³	kilo (k)	10 ⁻³	milli (m)
10 ⁶	mega (M)	10 ⁻⁶	micro (μ)
10 ⁹	giga (G)	10 ⁻⁹	nano (n)
10 ¹²	tera (T)	10 ⁻¹²	pico (p)
10 ¹⁵	peta (P)	10 ⁻¹⁵	femto (f)
10 ¹⁸	exa (E)	10 ⁻¹⁸	atto (a)

Tonne of CO₂

The *1996 IPCC Guidelines* and the *UNFCCC Reporting Guidelines on Annual Inventories* both ask that CO₂ emissions be reported in Gg of CO₂. A million tonnes of CO₂ is equal to 1 000 Gg of CO₂, so to compare the numbers in this publication with national inventories expressed in Gg, multiply the IEA emissions by 1 000.

Other organisations may present CO₂ emissions in tonnes of carbon instead of tonnes of CO₂. To convert from tonnes of carbon, multiply by 44/12, which is the molecular weight ratio of CO₂ to C.

3. INDICATORS

Population

The main source of the 1970 to 2008 population data for the OECD member countries is *National Accounts of OECD Countries, Volume 1*, OECD, Paris, 2010. Data for 1960 to 1969 have been estimated using the growth rates from the population series published in the *OECD Economic Outlook No. 76*. For the **Czech Republic, Hungary and Poland** (1960 to 1969) and **Mexico** (1960 to 1962), the data are estimated using the growth rates from the population series from the World Bank published in the *World Development Indicators CD-ROM*. For the **Slovak Republic**, population data for 1960 to 1989 are from the Demographic Research Centre, Infostat, Slovak Republic.

The main source of the population data for the OECD non-member countries is *World Development Indicators*, World Bank, Washington D.C., 2010. Population data for **Chinese Taipei, Gibraltar, Iraq** and a few countries within the regions³ **Other Africa, Other Latin America** and **Other Asia** are based on the CHELEM-CEPII online database, 2010.

GDP

The main source of the 1970 to 2008 GDP series for the OECD member countries is *National Accounts of OECD Countries, Volume 1*, 2010. GDP data for 1960 to 1969 have been estimated using the growth rates from the series in the *OECD Economic Outlook No 76* and data previously published by the OECD Secretariat. Data prior to 1990 for the **Czech Republic and Poland**, prior to 1991 for **Hungary**, and prior to 1992 for the **Slovak Republic** are IEA Secretariat estimates based on GDP growth rates from the World Bank.

The main source of the GDP series for the non-OECD member countries is *World Development Indicators*, World Bank, Washington D.C., 2010. GDP figures for **Bosnia and Herzegovina, Brunei Darussalam, Chinese Taipei, Cuba, Gibraltar, Iraq, Democratic People's Republic of Korea, Libyan Arab Jamahiriya, Myanmar, Namibia** (1971-1979), **Netherlands Antilles** (available from 1980), **Qatar, Former Soviet Union** (before 1990), **Former Yugoslavia** (before 1990) and a few countries within the regions³ **Other Africa, Other Latin America** and **Other Asia** are from the CHELEM-CEPII online databases 2009, 2010. GDP figures for **Albania** (1971-1979), **Angola** (1971-1984), **Bahrain** (1971-1979, 2006-2008), **Bosnia and Herzegovina** (1990-1993), **Brunei Darussalam** (1971-1973, 2008), **Bulgaria** (1971-1979), **Cyprus** (2008), **Ethiopia** (1971-1980), **Jordan** (1971-1974), **Kuwait** (1990-1991, 2007-2008), **Lebanon** (1971-1987), **Malta** (2008), **Mozambique** (1971-1979), **Oman** (2006-2008), **Romania** (1971-1979), **Serbia**⁴ (1990-1998), **United Republic of Tanzania** (1971-1987), the **United Arab Emirates** (1971-1972 and 2007-2008), **Vietnam** (1971-1983), **Yemen** (1971-1989) and **Zimbabwe** (2006-2008) have been estimated based on the growth rates of the CHELEM-CEPII online database, 2010.

The GDP data have been compiled for individual countries at market prices in local currency and annual rates. These data have been scaled up/down to the price levels of 2000 and then converted to US dollars

3. Due to lack of complete time series, figures for population and for GDP of Other Latin America do not include British Virgin Islands, Cayman Islands, Falkland Islands, Martinique, Montserrat, Saint Pierre and Miquelon, and Turks and Caicos Islands; and figures for population and GDP of Other Asia do not include Cook Islands.

4. Data for GDP for Serbia include Montenegro until 2004.

using the yearly average 2000 exchange rates or purchasing power parities (PPPs).⁵

For the OECD member countries, the PPPs selected to convert the GDP from national currencies to US dollars come from the OECD Secretariat and were aggregated using the Geary-Khamis (GK) method and rebased on the United States. For a more detailed description of the methodology please see *Purchasing Power Parities and Real Expenditures, GK Results, Volume II, 1990*, OECD, 1993. The PPPs for the other countries come from the World Bank and CHELEM-CEPII.

For the OECD non-member countries, while both the World Bank and CHELEM-CEPII rebased their GDP PPP time series on 2005, this publication shows GDP data on a 2000 basis. Therefore, only time series of GDP PPP 2000 USD were obtained by applying the ratio GDP 2000 USD to GDP PPP 2000 USD of last year's edition to the new GDP 2000 USD figures.

CO₂ emissions

The estimates of CO₂ emissions in this publication are based on the *1996 IPCC Guidelines* and represent the total emissions from fuel combustion. Emissions have been calculated using both the IPCC Reference Approach and the IPCC Sectoral Approach (which corresponds to IPCC Source/Sink Category 1 A). Reference Approach totals may include certain fugitive emissions from energy transformation which should normally be included in Category 1 B. National totals do not include emissions from international marine bunkers and international aviation. See Chapter 1, IEA emissions estimates for further details.

Total primary energy supply

Total primary energy supply (TPES) is made up of production + imports - exports - international marine bunkers - *international aviation bunkers* ± stock changes.

5. Purchasing power parities are the rates of currency conversion that equalise the purchasing power of different currencies. A given sum of money, when converted into different currencies at the PPP rates, buys the same basket of goods and services in all countries. In other words, PPPs are the rates of currency conversion which eliminate the differences in price levels between different countries.

Note: In October 2008 the IEA hosted the third meeting of InterEnerStat. This group is made up of 24 international organisations that collect or use energy statistics. One of the objectives of the group is to improve the quality of energy data by harmonising definitions for energy sources and flows. As a result of this meeting, the IEA has decided to align its energy statistics and balances with most other international organisations and to treat international aviation bunkers in the same way as international marine bunkers. Starting with the 2009 edition, international aviation bunkers is subtracted out of supply in the same way as international marine bunkers.

Electricity and heat output

Total output (shown in the summary tables section) includes electricity and heat generated in the transformation sector using fossil fuels, nuclear, hydro (excluding pumped storage), geothermal, solar, biomass, etc.

Both **main activity**⁶ **producer** (formerly known as public) and **autoproducer**⁷ **plants** have been included where available.

For electricity, data include the total number of TWh generated by both **electricity plants** and **CHP plants**.

For heat, data include the total amount of TJ generated by both **CHP plants** and **heat plants**.

To calculate the total electricity and heat output, the heat generated in TJ has been converted to TWh using the relationship 1 TWh = 3 600 TJ and added to electricity generated.

Ratios

CO₂ / TPES: This ratio is expressed in tonnes of CO₂ per terajoule. It has been calculated using the Sectoral Approach CO₂ emissions and total primary energy supply (including biomass and other non-fossil forms of energy).

6. Main activity producers (formerly known as public supply undertakings) generate electricity and/or heat for sale to third parties, as their *primary activity*. They may be privately or publicly owned. Note that the sale need not take place through the public grid.

7. Autoproducer undertakings generate electricity and/or heat, wholly or partly for their own use as an activity which supports their primary activity. They may be privately or publicly owned.

CO₂ / GDP: This ratio is expressed in kilogrammes of CO₂ per 2000 US dollar. It has been calculated using the Sectoral Approach CO₂ emissions and is shown with both GDP calculated using exchange rates and GDP calculated using purchasing power parities.

CO₂ / population: This ratio is expressed in tonnes of CO₂ per capita. It has been calculated using the Sectoral Approach CO₂ emissions.

Per capita CO₂ emissions by sector: These ratios are expressed in kilogrammes of CO₂ per capita. They have been calculated in two different ways. In the first ratio, the emissions from electricity and heat production are shown separately. In the second ratio, the emissions from electricity and heat have been allocated to final consuming sectors in proportion to the electricity and heat consumed by those sectors.

CO₂ emissions per kWh: These ratios are expressed in grammes of CO₂ per kWh. They have been calculated using CO₂ emissions from electricity and heat as shown in the country tables in the rows “main activity producer electricity and heat” and “unallocated autoproducers”, and electricity and heat output as described above.

In the first table on CO₂ emissions per kWh, the CO₂ emissions include emissions from fossil fuels, industrial waste and non-renewable municipal waste that are consumed for electricity and heat generation in the transformation sector and output includes electricity and heat generated from fossil fuels, nuclear, hydro (excluding pumped storage), geothermal, solar, biomass, etc. As a result, the emissions per kWh can vary from year to year depending on the generation mix.

In the ratios of CO₂ emissions per kWh **by fuel**:

- **Coal/peat** includes primary and secondary coal, peat and manufactured gases (excluding gas works gas).
- **Oil** includes petroleum products (and small amounts of crude oil for some countries).
- **Gas** includes natural gas and gas works gas.

Note: Emissions per kWh should be used with caution due to data quality problems relating to electricity efficiencies for some countries.

Implied emission factors from electricity and heat generation

Summary tables presenting CO₂ emissions per kWh from electricity and heat generation by country are presented in Part II. However, these values will vary enormously depending on the fuel mix of individual countries. Average implied emission factors by individual product for this sector are presented below. These values represent the average grammes of CO₂ per kWh of electricity and heat produced in the OECD member countries between 2006 and 2008. These figures will reflect any problems that may occur in net calorific values or in input/output efficiencies. Consequently, these values are given as an approximation and actual values may vary considerably.

Fuel	g CO ₂ / kWh
Anthracite *	840
Coking coal *	720
Other bituminous coal	840
Sub-bituminous coal	930
Lignite/brown coal	940
Patent fuel	880
Coke oven coke *	540
BKB/peat briquettes *	500-1100
Gas works gas *	400
Coke oven gas *	370
Blast furnace gas *	2100
Oxygen steel furnace gas *	1900
Natural gas	370
Crude oil *	640
Natural gas liquids *	700
Liquefied petroleum gases *	650
Kerosene *	640
Gas/diesel oil *	670
Residual fuel oil	635
Petroleum coke *	960
Peat *	570
Industrial waste *	450-2000
Municipal waste (non-renewable)*	450-2000

* These fuels represent less than 1% of electricity and heat output in the OECD. Values will be less reliable and should be used with caution.

4. GEOGRAPHICAL COVERAGE

Africa includes Algeria, Angola, Benin, Botswana (from 1981), Cameroon, Congo, Democratic Republic of Congo, Côte d'Ivoire, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Libyan Arab Jamahiriya, Morocco, Mozambique, Namibia (from 1991), Nigeria, Senegal, South Africa, Sudan, United Republic of Tanzania, Togo, Tunisia, Zambia, Zimbabwe and **Other Africa**.

Other Africa includes Botswana (until 1980), Burkina Faso, Burundi, Cape Verde, Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Namibia (until 1990), Niger, Reunion, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone, Somalia, Swaziland, Uganda and Western Sahara (from 1990).

Middle East includes Bahrain, Islamic Republic of Iran, Iraq, Israel⁸, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Yemen.

Non-OECD Europe includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus⁹, Gibraltar, Former Yugoslav Republic of Macedonia (FYROM), Malta, Romania, Serbia¹⁰, and Slovenia.

Former Soviet Union includes Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

Latin America includes Argentina, Bolivia, Brazil, Chile¹¹, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Netherlands Antilles, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela and **Other Latin America**.

Other Latin America includes Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Falkland Islands, French Guyana, Grenada, Guadeloupe, Guyana, Martinique, Montserrat, Puerto Rico¹² (for natural gas and electricity), St. Kitts and Nevis, Saint Lucia, Saint Pierre et Miquelon, St. Vincent and the Grenadines, Suriname and Turks/Caicos Islands.

China includes the People's Republic of China and Hong Kong (China).

Asia includes Bangladesh, Brunei Darussalam, Cambodia (from 1995), Chinese Taipei, India, Indonesia, DPR of Korea, Malaysia, Mongolia (from 1985), Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Vietnam and **Other Asia**.

Other Asia includes Afghanistan, Bhutan, Cambodia (until 1994), Cook Islands, East Timor, Fiji, French Polynesia, Kiribati, Laos, Macau, Maldives, Mongolia (until 1984), New Caledonia, Palau (from 1994), Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu.

8. See the note concerning Israel in Chapter 1.

9. See the note concerning Cyprus in Chapter 1.

10. Serbia includes Montenegro until 2004 and Kosovo until 1999.

11. Chile became a member country of the OECD with effect from 7 May 2010. Since the preparation of the annual statistics publications was well on its way at that stage, data for Chile have not been included in OECD totals for the 2010 edition and will continue to be included in Latin America with the OECD non-member countries. The IEA Secretariat will work closely with the Chilean Administration, especially on the consistency of the time series, to incorporate Chile into OECD totals in the 2011 edition.

12. Oil statistics as well as coal trade statistics for Puerto Rico are included under the United States.

The **Organisation for Economic Co-Operation and Development**¹¹ (OECD) includes Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

Within the **OECD**:

Australia excludes the overseas territories.

Denmark excludes Greenland and the Danish Faroes, except prior to 1990, where data on oil for Greenland were included with the Danish statistics. The Administration is planning to revise the series back to 1974 to exclude these amounts.

France includes Monaco, and excludes the following overseas departments and territories (Guadeloupe, Guyana, Martinique, New Caledonia, French Polynesia, Reunion and St.-Pierre and Miquelon).

Germany includes the new federal states of Germany from 1970 onwards.

Italy includes San Marino and the Vatican.

Japan includes Okinawa.

The **Netherlands** excludes Suriname and the Netherlands Antilles.

Portugal includes the Azores and Madeira.

Spain includes the Canary Islands.

Switzerland includes Liechtenstein for the oil data. Data for other fuels do not include Liechtenstein.

Shipments of coal and oil to the Channel Islands and the Isle of Man from the **United Kingdom** are not classed as exports. Supplies of coal and oil to these islands are, therefore, included as part of UK supply. Exports of natural gas to the Isle of Man are included with the exports to Ireland.

United States includes the 50 states and the District of Columbia. Oil statistics as well as coal trade statistics also include Puerto Rico¹³, Guam, the Virgin Islands, American Samoa, Johnston Atoll, Midway Islands, Wake Island and the Northern Mariana Islands.

The **European Union - 27 (EU-27)** includes Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden and the United Kingdom.

The **International Energy Agency (IEA)** includes Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

Annex I Parties include Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, the Czech Republic¹⁴, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication), Lithuania, Luxembourg, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic¹⁴, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom and the United States.

The countries that are listed above are included in Annex I of the United Nations Framework Convention on Climate Change as amended on 11 December 1997 by the 12th Plenary meeting of the Third Conference of the Parties in Decision 4/CP.3. This includes the countries that were members of the OECD at the time of the signing of the Convention, the EEC, and fourteen countries in Central and Eastern Europe and the Former Soviet Union that are undergoing the process of transition to market economies.

Annex II Parties include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Liechtenstein (not available in this publication), Luxembourg, Monaco (included with France), the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

According to Decision 26/CP.7 in document FCCC/CP/2001/13/Add.4, Turkey has been deleted from the list of Annex II countries to the Convention. This amendment entered into force on 28 June 2002.

13. Natural gas and electricity data for Puerto Rico are included under Other Latin America.

14. Czechoslovakia was in the original list of Annex I countries.

Economies in Transition (EITs) are those countries in Annex I that are undergoing the process of transition to a market economy. This includes Belarus, Bulgaria, Croatia, the Czech Republic¹⁴, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, the Slovak Republic¹⁴, Slovenia and Ukraine.

Annex I Kyoto Parties include Australia, Austria, Belgium, Bulgaria, Canada, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein (not available in this publication), Lithuania, Luxembourg, Monaco (included with France), the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine and the United Kingdom.

Membership in the Kyoto Protocol is almost identical to that of Annex I, except for Turkey and Belarus which did not agree to a target under the Protocol and the United States which has expressed the intention not to ratify the Protocol. Australia ratified the Protocol on 12 December 2007 and has been included in the Kyoto aggregate in this edition.

Please note that the following countries have not been considered due to lack of data:

Africa: Saint Helena.

America: Anguilla.

Asia and Oceania: Christmas Island, Nauru and Niue.

Non-OECD Europe: Liechtenstein¹⁵ (except for oil data) and Montenegro¹⁶ (after 2004).

15. Oil data for Liechtenstein are included under Switzerland.

16. Data for Montenegro are included under Serbia until 2004.

5. IPCC METHODOLOGIES

General notes

The ultimate objective of the UNFCCC (the Convention) is the stabilisation of greenhouse-gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The Convention also calls for all Parties to commit themselves to the following objectives:

- to develop, update periodically, publish and make available to the Conference of the Parties (COP) their national inventories of anthropogenic emissions by sources and removals by sinks, of all greenhouse gases not controlled by the Montreal Protocol.
- to use comparable methodologies for inventories of greenhouse-gas emissions and removals, to be agreed upon by the COP.

As a response to the objectives of the UNFCCC, the IEA Secretariat, together with the IPCC, the OECD and numerous international experts, has helped to develop and refine an internationally-agreed methodology for the calculation and reporting of national greenhouse-gas emissions from fuel combustion. This methodology was published in 1995 in the *IPCC Guidelines for National Greenhouse Gas Inventories*. After the initial dissemination of the methodology, revisions were added to several chapters, and published as the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (1996 IPCC Guidelines)*. In April 2006, the IPCC approved the *2006 Guidelines* at the 25th session of the IPCC in Mauritius. For now, most countries (as well as the IEA Secretariat) are still calculating their inventories using the *1996 IPCC Guidelines*.¹⁷

17. Both the *1996 IPCC Guidelines* and the *2006 IPCC Guidelines* are available from the IPCC Greenhouse Gas Inventories Programme (www.ipcc-nggip.iges.or.jp).

Since the IPCC methodology for fuel combustion is largely based on energy balances, the IEA estimates for CO₂ from fuel combustion published in this document have been calculated using the IEA energy balances and the default IPCC methodology. However, other possibly more detailed methodologies may be used by Parties to calculate their inventories. This may lead to different estimates of emissions. See Chapter 1, IEA emissions estimates, for further details.

The calculation of CO₂ emissions from fuel combustion may be done at three different levels referred to as Tiers 1, 2 and 3. The Tier 1 methods estimate the emissions from the carbon content of fuels supplied to the country as a whole (the Reference Approach) or to the main fuel combustion activities (Sectoral Approach). The following chapter summarises the IPCC Tier 1 methodology from the *1996 IPCC Guidelines*.

Reference Approach

Introduction

Carbon dioxide emissions are produced when carbon-based fuels are burned. National emissions estimates are based on the amounts of fuels used and on the carbon content of fuels.

Fuel combustion is widely dispersed throughout most activities in national economies and a complete record of the quantities of each fuel type consumed in each end-use activity is a considerable task, which some countries have not undertaken. Fortunately, it is possible to obtain a relatively accurate estimate of national CO₂ emissions by accounting for the carbon in fuels supplied to the economy. The supply of fuels

is simple to record and the statistics are more likely to be available in many countries.

In accounting for fuels supplied¹⁸ it is important to distinguish between *primary fuels* (i.e. fuels which are found in nature such as coal, crude oil, natural gas), and *secondary fuels* or fuel products, such as gasoline and lubricants, which are derived from primary fuels.

Accounting for carbon is based mainly on the supply of primary fuels and the net quantities of secondary fuels brought into the country.

To calculate supply of fuels to the country necessitates the following data for each fuel and year chosen:

- the amounts of primary fuels produced (production of secondary fuels is excluded);
- the amounts of primary and secondary fuels imported;
- the amounts of primary and secondary fuels exported;
- the amounts of fuel used for international marine bunkers and international aviation (hereafter referred to as bunkers);
- the net increases or decreases in stocks of the fuels.

For each fuel, the production (where appropriate) and imports are added together and the exports, bunkers, and stock changes are subtracted to calculate the apparent consumption of the fuels. In cases where exports of secondary fuels exceed imports or stock increases exceed net imports, negative numbers will result.

The manufacture of secondary fuels is ignored in the main calculation, as the carbon in these fuels has already been accounted for in the supply of primary fuels from which they are derived. However, information on production of some secondary fuel products is required to adjust for carbon stored in these products.

Three other important points influence the accounting methodology:

- *Stored carbon*

Not all fuel supplied to an economy is burned for heat energy. Some is used as a raw material (or feedstock) for manufacture of products such as plastics or in a non-energy use (e.g. bitumen for road construction), without oxidation (emissions) of the carbon. This is called *stored carbon*, and is deducted from the carbon emissions calculation. Estimation of the stored carbon requires data for fuel use by activities using the fuel as raw material.

- *International bunker fuels*

The procedures given for calculating emissions ensure that emissions from the use of fuels for **international** marine and air transport are excluded from national emissions totals. However, for information purposes, the quantities and types of fuels delivered and the corresponding emissions from international marine bunkers and international aviation should be separately reported.

- *Biomass fuels*

In the IPCC methodology, biomass fuels are not included in the CO₂ emissions from fuel combustion and are only shown for informational purposes. This is because for CO₂ emissions, biomass consumption for fuel is assumed to equal its regrowth. Any departures from this hypothesis are counted within the land use, land use change and forestry module of the *1996 IPCC Guidelines*. For this reason, emissions from the burning of biomass for energy are not included in the CO₂ emissions from fuel combustion in this publication.

Methodology

The IPCC methodology breaks the calculation of carbon dioxide emissions from fuel combustion into six steps:

- Step 1: Estimate apparent fuel consumption in original units
- Step 2: Convert to a common energy unit
- Step 3: Multiply by emission factors to compute the carbon content
- Step 4: Compute carbon stored
- Step 5: Correct for carbon unoxidised
- Step 6: Convert carbon oxidised to CO₂ emissions

18. The following discussion excludes all non-carbon energy sources such as nuclear, hydro, geothermal, solar, etc.

Completing Worksheet 1

This section is from the Workbook of the *1996 IPCC Guidelines* and provides step-by-step instructions for calculating emissions at the detailed fuels and fuel products level. Worksheet 1 can be consulted at the end of this chapter.

NOTE: The main worksheet allows CO₂ emissions from biomass fuels to be calculated but it does not include them in the national total.

Step 1 Estimating apparent fuel consumption

1 Apparent consumption is the basis for calculating the carbon supply for the country. To calculate apparent consumption (or total fuel supplied) for each fuel, the following data for primary fuels are entered:

- Production (Column A)
- Imports (Column B)
- Exports (Column C)
- International bunkers (Column D)
- Stock change (Column E)

For secondary fuels and products, the only figures entered are:

- Imports (Column B)
- Exports (Column C)
- International bunkers (Column D)
- Stock change (Column E)

These allow the overall calculation to account for all consumption.

Amounts of all fuels can be expressed in joules (J), megajoules (MJ), gigajoules (GJ), terajoules (TJ) or thousands of tonnes of oil equivalent (ktoe). Solid or liquid fuels can be expressed as thousands of tonnes (kt) and dry natural gas can be expressed as teracalories (Tcal) or cubic metres (m³).

NOTE: The figure for production of natural gas, used in Worksheet 1, **does not** include quantities of gas vented, flared or re-injected into the well.

Quantities are expressed in terms of the net calorific values (NCV) of the fuels concerned. NCV is sometimes referred to as the lower heating value (LHV). NCVs are approximately 95% of the gross calorific value (GCV) for liquid fossil, solid fossil and biomass fuels, and 90% of the GCV for natural gas.

2 Apparent consumption is calculated for each fuel using this formula:

Apparent consumption =

Production + Imports - Exports - International bunkers - Stock change

The results are entered in Column F.

Particular attention is given to the algebraic sign of “stock change” as it is entered in Column E. When more fuel is added to stock than is taken from it during the year there is a net stock build and the quantity is entered in Column E with a plus sign. In the converse case (a stock draw) the quantity is entered in Column E with a minus sign.

Step 2 Converting to a common energy unit (TJ)

- 1 The conversion factor used for each fuel is entered in Column G.
- 2 The Apparent consumption is multiplied by the relevant conversion factor (NCV or scaling factor) to give apparent consumption in terajoules. The result is entered in Column H.

TABLE 1
CONVERSION FACTORS

<i>Unit</i>	<i>Conversion factor</i>
J, MJ or GJ	Number is divided by the appropriate factor, 10 ¹² , 10 ⁶ or 10 ³ respectively, to convert to TJ.
10 ⁶ toe	Number is multiplied by the conversion factor, 41868 TJ/10 ⁶ toe, to convert to TJ.
Tcal	Number is multiplied by the conversion factor, 4.1868 TJ/Tcal.
10 ³ t	The net calorific value of each fuel is used (see Table 2).

TABLE 2
SELECTED NET CALORIFIC VALUES

	<i>Factors (TJ/10³ tonnes)</i>
Refined petroleum products	
Gasoline	44.80
Jet kerosene	44.59
Other kerosene	44.75
Shale oil	36.00
Gas/diesel oil	43.33
Residual fuel oil	40.19
LPG	47.31
Ethane	47.49
Naphtha	45.01
Bitumen	40.19
Lubricants	40.19
Petroleum coke	31.00
Refinery feedstocks	44.80
Refinery gas	48.15
Other oil products	40.19
Other products	
Coal oils and tars derived from coking coals	28.00
Oil shale	9.40
Orimulsion	27.50

NOTE: When converting from 10³ t, for anthracite, coking coal, other bituminous coal, sub-bituminous coal and lignite, separate country-specific net calorific values are used for production (Column A), imports (Column B), and exports (Column C). For these fuels, apparent consumption is calculated by converting production, imports, exports, and stock changes to TJ first. For international bunkers (Column D) and stock change (Column E), either a weighted average net calorific value or a factor appropriate to the dominant source of supply is used.

Step 3 Multiplying by carbon emission factors

- 1 The carbon emission factor (CEF) used to convert apparent consumption into carbon content is entered in Column I.

Table 3 shows the default values used in this publication.

TABLE 3
CARBON EMISSION FACTORS (CEF)

<i>Fuel</i>	<i>Carbon emission factor (t C/TJ)</i>
LIQUID FOSSIL	
<i>Primary fuels</i>	
Crude oil	20.0
Orimulsion	22.0
Natural gas liquids	17.2
<i>Secondary fuels/products</i>	
Gasoline	18.9
Jet kerosene	19.5
Other kerosene	19.6
Shale oil	20.0
Gas/diesel oil	20.2
Residual fuel oil	21.1
LPG	17.2
Ethane	16.8
Naphtha	(20.0) ^(a)
Bitumen	22.0
Lubricants	(20.0) ^(a)
Petroleum coke	27.5
Refinery feedstocks	(20.0) ^(a)
Refinery gas	18.2 ^(b)
Other oil	(20.0) ^(a)
SOLID FOSSIL	
<i>Primary fuels</i>	
Anthracite	26.8
Coking coal	25.8
Other bituminous coal	25.8
Sub-bituminous coal	26.2
Lignite	27.6
Oil shale	29.1
Peat	28.9
<i>Secondary fuels/products</i>	
BKB & patent fuel	(25.8) ^(a)
Coke oven / gas coke	29.5
Coke oven gas	13.0 ^(b)
Blast furnace gas	66.0 ^(b)
GASEOUS FOSSIL	
Natural gas (dry)	15.3
BIOMASS^(c)	
Solid biomass	29.9
Liquid biomass	(20.0) ^(a)
Gas biomass	(30.6) ^(a)

Notes to Table 3

(a) This value is a default value until a fuel specific CEF is determined. For gas biomass, the CEF is based on the assumption that 50% of the carbon in the biomass is converted to methane and 50% is emitted as CO₂. The CO₂ emissions from biogas should not be included in national inventories. If biogas is released and not combusted, 50% of the carbon content should be included as methane.

(b) For use in the sectoral calculations.

(c) Emissions from the use of biomass for fuel are not shown in this publication.

- 2 The apparent consumption in TJ (in Column H) is multiplied by the carbon emission factor (in Column I) to give the carbon content in tonnes of C. The result is entered in Column J.
- 3 The carbon content in tonnes C is divided by 10³ to give gigagrammes of carbon. The result is entered in Column K.

Step 4 Calculating carbon stored

1 Estimating fuel quantities

Bitumen and lubricants

Domestic production for bitumen and lubricants is added to the apparent consumption (shown in Column F of the main Worksheet 1) for these products and the sum is entered in Column A of Auxiliary Worksheet 1.

Coal oils and tars

For coking coal, the default assumption is that 6% of the carbon in coking coal consumed is converted to oils and tars. The apparent consumption for coking coal (from Worksheet 1, Column F) is multiplied by 0.06.

Starting with the 2006 edition, the IEA Secretariat has requested coal tar data on its annual coal questionnaire. In cases where this information has been provided, to be consistent with the 1996 IPCC Guidelines, 75% of the part reported as non-energy was considered to be stored and the default 6% of coking coal was not applied.

Natural gas, LPG, ethane, naphtha and gas/diesel oil

The amount of these fuels used as a feedstock for non-energy purposes is entered in Column A.

2 Converting to TJ

The appropriate conversion factors are inserted in Column B of Auxiliary Worksheet 1. The estimated fuel quantities (Column A) are multiplied by the relevant conversion factor to give the estimated fuel quantities in TJ. The result is entered in Column C.

3 Calculating carbon content

The estimated fuel quantities in TJ (Column C of Auxiliary Worksheet 1) are multiplied by the emission factor in tonnes of carbon per terajoule (Column D) to give the carbon content in tonnes of C (Column E). The figures are divided by 10³ to express the amount as gigagrammes of carbon. The results are entered in Column F.

4 Calculating actual carbon stored

The carbon content (Column F of Auxiliary Worksheet 1) is multiplied by the fraction of carbon stored (Column G) to give the carbon stored. The result is entered in Column H.

When Auxiliary Worksheet 1 is completed

- 5 The values for carbon stored for the relevant fuels/products are entered in Column L of the main Worksheet 1.
- 6 The values for carbon stored (Column L) are subtracted from carbon content (Column K) to give net carbon emissions. The results are entered in Column M.

Step 5 Correcting for carbon unoxidised

- 1 The values for fraction of carbon oxidised are entered in Column N of Worksheet 1. Table 4 provides information on typical values measured from various facilities and suggests global default values for solid, liquid and gaseous fuels.
- 2 Net carbon emissions (Column M) are multiplied by the fraction of carbon oxidised (Column N) and the results are entered in Column O, actual carbon emissions.

TABLE 4
FRACTION OF CARBON OXIDISED

Coal ¹	0.98
Oil and oil products	0.99
Gas	0.995
Peat for electricity generation ²	0.99

1. This figure is a global average but varies for different types of coal, and can be as low as 0.91.

2. The fraction for peat used in households may be much lower.

Step 6 Converting to CO₂ emissions

- 1 Actual carbon emissions (Column O) are multiplied by 44/12 (which is the molecular weight ratio of CO₂ to C) to find total carbon dioxide (CO₂) emitted from fuel combustion. The results are entered in Column P.
- 2 The sum is total national emissions of carbon dioxide from fuel combustion. These are the numbers shown for total CO₂ emissions from fuel combustion in this publication.

Sectoral Approach

Introduction

A sectoral breakdown of national CO₂ emissions using the defined IPCC Source/Sink Categories is needed for monitoring and abatement policy discussions. The IPCC Reference Approach provides a rapid estimate of the total CO₂ emissions from fuels supplied to the country but it does not break down the emissions by sector.

The more detailed calculations used for the Sectoral Approach are essentially similar in content to those used for the Reference Approach.

Completing Worksheet 2

This section is from the Workbook of the *1996 IPCC Guidelines* and provides step-by-step instructions for calculating emissions by fuels for each of the main source categories using the IPCC Tier 1 Sectoral Approach. A sample sheet of Worksheet 2 can be consulted at the end of this chapter.

Step 1 Estimating sectoral fuel consumption

The amount of each fuel consumed by sector is entered in Column A.

Energy and transformation sector

Special care needs to be taken when considering the fuel use of the energy and transformation sector so that double counting is avoided.

Fuel use in the energy and transformation sector can be divided into three groups:

Transformation sector

- 1 Fuels transformed into secondary fuels by physical or chemical processes not involving combustion (e.g. crude oil to petroleum products in refineries, coal to coke and coke oven gas in coke ovens);
- 2 Fuels combusted to generate electricity and/or heat (excluding fuels used for autoproduction of electricity and heat, which are reported in the sector where they are used);

Energy sector

- 3 Fuels combusted by the energy (energy extraction and transformation) industries for heating, pumping, traction and lighting purposes (e.g. refinery gas for heating distillation columns, use of colliery methane at mines for heating purposes).

In this worksheet, only fuel use by Groups 2 and 3 (fuels that are combusted) is included. However, see Step 4 for the reporting of lubricants used by the energy industries. For emissions resulting from fuel use by Group 1, no worksheets are available. They should be reported under the IPCC Source/Sink Category 1B: fugitive emissions from fuels. It is most important that this distinction be appreciated. The quantities of *primary* fuels reported in Column A will understate the quantities used for Group 1 activities. The reported quantities cover only the combustion needs of these industries.

Step 2 Converting to a common energy unit (TJ)

- 1 The conversion factor (NCV or scaling factor) to convert to terajoules is entered in Column B.
- 2 The consumption is multiplied by the relevant conversion factor to give consumption in terajoules. The result is entered in Column C.

Step 3 Multiplying by carbon emission factors

- 1 The carbon emission factor used to convert consumption into carbon content is entered in Column D.
- 2 The consumption in TJ (in Column C) is multiplied by the carbon emission factor (in Column D) to give the carbon content in tonnes of carbon. The result is entered in Column E.

- 3 The carbon content in tonnes of carbon is divided by 10^3 to be expressed as gigagrammes of carbon. The result is entered in Column F.

Step 4 Calculating carbon stored

For the calculation of carbon stored, fuels are distinguished into four groups:

- Fuels used as feedstocks, such as naphtha, natural gas, gas/diesel oil, LPG or ethane;
- Lubricants;
- Bitumen and coal tars;
- Fuels for which no carbon is stored.

Fuels used as feedstocks, such as naphtha, natural gas, gas/diesel oil, LPG or ethane:

This subsection on feedstocks applies only to the industry source category.

1 Estimating fuel quantities

The amount of fuel used as a feedstock for non-energy purposes is entered in Column A of Auxiliary Worksheet 2.

2 Converting to TJ

The appropriate conversion factor is inserted in Column B. Feedstock use (Column A) is multiplied by the relevant conversion factor to give the feedstock use in TJ. The result is entered in Column C of Auxiliary Worksheet 2.

3 Calculating carbon content

The feedstock use in TJ (Column C) is multiplied by the emission factor in tonnes of carbon per terajoule (Column D) to give the carbon content in tonnes C (Column E). The figures are divided by 10^3 to express the amount as gigagrammes of carbon. The results are entered in Column F of Auxiliary Worksheet 2.

4 Calculating actual carbon stored

The carbon content (Column F) is multiplied by the fraction of carbon stored (Column G) to give the carbon stored. The result is entered in Column H of Auxiliary Worksheet 2.

After completion of Auxiliary Worksheet 2

- 5 The amount of carbon stored for the relevant fuel/product is entered in Column H of Worksheet 2 for the industry source category.
- 6 The amount of carbon stored (Column H) is subtracted from the carbon content (Column F) to give net carbon emissions. The results are entered in Column I.

Lubricants:

It has been estimated that during the first use, recycling and final disappearance of lubricants, approximately half of the production is oxidised as CO₂.

- 1 For each sector where lubricants are used, the fraction of carbon stored for lubricants is entered in Column G. The default value of 0.5 is used for this publication.
- 2 The carbon content (Column F) is multiplied by the fraction of carbon stored (Column G) to obtain the amount of carbon stored. The result is entered in Column H.
- 3 The amount of carbon stored (Column H) is subtracted from the carbon content (Column F) to obtain the net carbon emissions. The result is entered in Column I.

Bitumen and coal tars:

Bitumen and coal tars are usually not combusted but used in a manner that stores almost all of the carbon. Emissions of non-methane volatile organic compounds (NMVOCs) from the use of bitumen for road paving are estimated in the industrial processes chapter.

Fuels for which no carbon is stored:

Step 4 is skipped and the values from Column F are entered in Column I before continuing with Step 5.

Step 5 Correcting for carbon unoxidised

- 1 Values for fraction of carbon oxidised are entered in Column J of Worksheet 2. Table 4 provides information on typical values measured from coal facilities and suggests global default values for solid, liquid and gaseous fuels.
- 2 Net carbon emissions (Column I) are multiplied by fraction of carbon oxidised (Column J) and the results are entered in Column K, actual carbon emissions.

Step 6 Converting to CO₂ emissions

- 1 Actual carbon emissions (Column K) are multiplied by 44/12 (which is the molecular weight ratio of CO₂ to C) to find actual carbon dioxide (CO₂) emissions. The results are entered in Column L and correspond to the sectoral emissions included in the present publication.

MODULE			ENERGY					
SUBMODULE			CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)					
WORKSHEET			1					
SHEET			1 OF 5					
			STEP 1					
			A Production	B Imports	C Exports	D International Bunkers	E Stock Change	F Apparent Consumption
FUEL TYPES								F=(A+B -C-D-E)
Liquid Fossil	Primary Fuels	Crude Oil						
		Orimulsion						
		Natural Gas Liquids						
	Secondary Fuels	Gasoline						
		Jet Kerosene						
		Other Kerosene						
		Shale Oil						
		Gas / Diesel Oil						
		Residual Fuel Oil						
		LPG						
		Ethane						
		Naphtha						
		Bitumen						
		Lubricants						
		Petroleum Coke						
		Refinery Feedstocks						
		Other Oil						
Liquid Fossil Totals								
Solid Fossil	Primary Fuels	Anthracite ^(a)						
		Coking Coal						
		Other Bit. Coal						
		Sub-Bit. Coal						
		Lignite						
		Oil Shale						
		Peat						
	Secondary Fuels	BKB & Patent Fuel						
		Coke Oven/Gas Coke						
Solid Fossil Totals								
Gaseous Fossil		Natural Gas (Dry)						
Total								
Biomass Total								
		Solid biomass						
		Liquid biomass						
		Gas biomass						

(a) If anthracite is not separately available, include with other bituminous coal.

MODULE			ENERGY				
SUBMODULE			CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)				
WORKSHEET			1				
SHEET			2 OF 5				
			STEP 2		STEP 3		
			G ^(a) Conversion Factor (TJ/Unit)	H Apparent Consumption (TJ)	I Carbon Emission Factor (t C/TJ)	J Carbon Content (t C)	K Carbon Content (Gg C)
FUEL TYPES				H=(FxG)		J=(HxI)	K=(Jx10 ⁻³)
Liquid Fossil	Primary Fuels	Crude Oil					
		Orimulsion					
		Natural Gas Liquids					
	Secondary Fuels	Gasoline					
		Jet Kerosene					
		Other Kerosene					
		Shale Oil					
		Gas / Diesel Oil					
		Residual Fuel Oil					
		LPG					
		Ethane					
		Naphtha					
		Bitumen					
		Lubricants					
		Petroleum Coke					
		Refinery Feedstocks					
		Other Oil					
Liquid Fossil Totals							
Solid Fossil	Primary Fuels	Anthracite ^(b)					
		Coking Coal					
		Other Bit. Coal					
		Sub-Bit. Coal					
		Lignite					
		Oil Shale					
		Peat					
	Secondary Fuels	BKB & Patent Fuel					
		Coke Oven/Gas Coke					
Solid Fossil Totals							
Gaseous Fossil		Natural Gas (Dry)					
Total							
Biomass Total							
		Solid biomass					
		Liquid biomass					
		Gas biomass					

(a) Please specify units.

(b) If anthracite is not separately available, include with other bituminous coal.

MODULE			ENERGY				
SUBMODULE			CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)				
WORKSHEET			1				
SHEET			3 OF 5				
			STEP 4		STEP 5		STEP 6
			L Carbon Stored (Gg C)	M Net Carbon Emissions (Gg C)	N Fraction of Carbon Oxidised	O Actual Carbon Emissions (Gg C)	P Actual CO ₂ Emissions (Gg CO ₂)
FUEL TYPES				M=(K-L)		O=(MxN)	P=(Ox[44/12])
Liquid Fossil	Primary Fuels	Crude Oil					
		Orimulsion					
		Natural Gas Liquids					
	Secondary Fuels	Gasoline					
		Jet Kerosene					
		Other Kerosene					
		Shale Oil					
		Gas / Diesel Oil					
		Residual Fuel Oil					
		LPG					
		Ethane					
		Naphtha					
		Bitumen					
		Lubricants					
		Petroleum Coke					
		Refinery Feedstocks					
		Other Oil					
		Liquid Fossil Totals					
Solid Fossil	Primary Fuels	Anthracite ^(a)					
		Coking Coal					
		Other Bit. Coal					
		Sub-Bit. Coal					
		Lignite					
		Oil Shale					
		Peat					
	Secondary Fuels	BKB & Patent Fuel					
		Coke Oven/Gas Coke					
	Solid Fossil Totals						
Gaseous Fossil	Natural Gas (Dry)						
Total							
Biomass Total							
	Solid biomass						
	Liquid biomass						
	Gas biomass						

(a) If anthracite is not separately available, include with other bituminous coal.

MODULE		ENERGY					
SUBMODULE		CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)					
WORKSHEET		1					
SHEET		4 OF 5 EMISSIONS FROM INTERNATIONAL BUNKERS (INTERNATIONAL MARINE AND AIR TRANSPORT)					
		STEP 1	STEP 2		STEP 3		
		A Quantities Delivered ^(a)	B Conversion Factor (TJ/unit)	C Quantities Delivered (TJ)	D Carbon Emission Factor (t C/TJ)	E Carbon Content (t C)	F Carbon Content (Gg C)
FUEL TYPES				$C=(A \times B)$		$E=(C \times D)$	$F=(E \times 10^{-3})$
Solid Fossil	Other Bituminous Coal						
	Sub-Bituminous Coal						
Liquid Fossil	Gasoline						
	Jet Kerosene						
	Gas/Diesel Oil						
	Residual Fuel Oil						
	Lubricants						
		Total					

(a) Enter the quantities from Worksheet 1, Sheet 1, Column D: "International Bunkers".

MODULE		ENERGY					
SUBMODULE		CO ₂ FROM ENERGY SOURCES (REFERENCE APPROACH)					
WORKSHEET		1					
SHEET		5 OF 5 EMISSIONS FROM INTERNATIONAL BUNKERS (INTERNATIONAL MARINE AND AIR TRANSPORT)					
		STEP 4			STEP 5		STEP 6
		G Fraction of Carbon Stored	H Carbon Stored (Gg C)	I Net Carbon Emissions (Gg C)	J Fraction of Carbon Oxidised	K Actual Carbon Emissions (Gg C)	L Actual CO ₂ Emissions (Gg CO ₂)
FUEL TYPES			$H=(F \times G)$	$I=(F-H)$		$K=(I \times J)$	$L=(K \times 44/12)$
Solid Fossil	Other Bituminous Coal	0	0				
	Sub-Bituminous Coal	0	0				
Liquid Fossil	Gasoline	0	0				
	Jet Kerosene	0	0				
	Gas/Diesel Oil	0	0				
	Residual Fuel Oil	0	0				
	Lubricants	0.5					
		Total ^(a)					

(a) The bunker emissions are not to be added to national totals.

MODULE	ENERGY							
SUBMODULE	CO₂ FROM ENERGY							
WORKSHEET	AUXILIARY WORKSHEET 1: ESTIMATING CARBON STORED IN PRODUCTS							
SHEET	1 OF 1							
	A	B	C	D	E	F	G	H
	Estimated Fuel Quantities	Conversion Factor (TJ/Units)	Estimated Fuel Quantities (TJ)	Carbon Emission Factor (t C/TJ)	Carbon Content (t C)	Carbon Content (Gg C)	Fraction of Carbon Stored	Carbon Stored (Gg C)
FUEL TYPES			$C=(A \times B)$		$E=(C \times D)$	$F=(E \times 10^{-3})$		$H=(F \times G)$
Naphtha ^(a)							0.80	
Lubricants							0.50	
Bitumen							1.0	
Coal Oils and Tars (from Coking Coal)							0.75	
Natural Gas ^(a)							0.33	
Gas/Diesel Oil ^(a)							0.50	
LPG ^(a)							0.80	
Ethane ^(a)							0.80	
Other fuels ^(b)								

(a) Enter these fuels when they are used as feedstocks.

(b) Use the other fuels rows to enter any other products in which carbon may be stored.

(a) Certain sectors have specific calculations for some products. See the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* for further details.

[illegible]

(a) Certain sectors have specific calculations for some products. See the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* for further details.

MODULE	ENERGY							
SUBMODULE	CO ₂ FROM FUEL COMBUSTION BY (TIER I SECTORAL APPROACH)							
WORKSHEET	AUXILIARY WORKSHEET 2: ESTIMATING CARBON STORED IN PRODUCTS							
SHEET	1							
	A	B	C	D	E	F	G	H
	Feedstock Use	Conversion Factor (TJ/Units)	Feedstock Use (TJ)	Carbon Emission Factor (t C/TJ)	Carbon Content (t C)	Carbon Content (Gg C)	Fraction of Carbon Stored	Carbon Stored ^(a) (Gg C)
FUEL TYPES			$C=(A \times B)$		$E=(C \times D)$	$F=(E \times 10^{-3})$		$H=(F \times G)$
Gas/Diesel Oil							0.5	
LPG							0.8	
Ethane							0.8	
Naphtha							0.8	
Natural Gas							0.33	
Other Fuels ^(b)								

(a) Enter the result of this calculation in Worksheet 2 Step by Step Calculation, in the *manufacturing industries and construction* sector.

(b) Please specify.

Key sources

In May 2000, the IPCC Plenary, at its 16th session held in Montreal, accepted the report on *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*,¹⁹ The report provides good practice guidance to assist countries in producing inventories that are neither over nor underestimates so far as can be judged, and in which uncertainties are reduced as far as practicable. It supports the development of inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and quality assurance, and efficient in the use of resources. The report does not revise or replace the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, but provides a reference that complements and is consistent with those guidelines.

Methodological choice for individual source categories is important in managing overall inventory uncertainty. Generally, inventory uncertainty is lower when emissions are estimated using the most rigorous methods, but due to finite resources, this may not be feasible for every source category. To make the most efficient use of available resources, it is good practice to identify those source categories that have the greatest contribution to overall inventory uncertainty. By identifying these key source categories in the national inventory, inventory agencies can prioritise their efforts and improve their overall estimates. Such a process will lead to improved inventory quality, as well as greater confidence in the resulting emissions estimates. It is good practice for each inventory agency to identify its national key source categories in a systematic and objective manner.

A key source category is one that is prioritised within the national inventory system because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both.

Any inventory agency that has prepared an emissions inventory will be able to identify key source categories

in terms of their contribution to the absolute level of national emissions. For those inventory agencies that have prepared a time series, the quantitative determination of key source categories should include evaluation of both the absolute level and the trend in emissions. Evaluating only the influence of a source category on the overall level of emissions provides limited information about why the source category is key. Some key source categories may not be identified if the influence of their trend is not taken into account.

The *Good Practice Guidance* describes both a basic Tier 1 approach and a Tier 2 approach. The basic difference between the two approaches is that the Tier 2 approach accounts for uncertainty.

In each country's national inventory, certain source categories are particularly significant in terms of their contribution to the overall uncertainty of the inventory. It is important to identify these key source categories so that the resources available for inventory preparation may be prioritised and the best possible estimates prepared for the most significant source categories.

The results of the key source category determination will be most useful if the analysis is done at the appropriate level of detail. The *Good Practice Guidance* suggests at which levels of details the various IPCC Source Categories should be analysed. For example, the combustion of fossil fuels is a large emission source category that can be broken down into sub-source categories, and even to the level of individual plants or boilers. The following guidance describes good practice in determining the appropriate level of analysis to identify key source categories:

- The analysis should be performed at the level of IPCC source categories (i.e. at the level at which the IPCC methods are described). The analysis should be performed using CO₂-equivalent emissions calculated using the global warming potentials (GWPs) specified for the preparation of national greenhouse-gas inventories by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual inventories (UNFCCC Guidelines).
- Each greenhouse gas emitted from a single source category should be considered separately, unless there are specific methodological reasons for treating gases collectively. For example, carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) are

19. The report on *IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* is available from the IPCC Greenhouse Gas Inventories Programme (www.ipcc-nggip.iges.or.jp).

emitted from mobile sources. The key source category evaluation should be performed for each of these gases separately because methods, emission factors and related uncertainties differ for each gas. In contrast, a collective evaluation of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) may be appropriate for some source categories, such as emissions from substitutes for Ozone Depleting Substances (ODS substitutes).

- Source categories that use the same emission factors based on common assumptions should be aggregated before analysis. This approach can also help deal with cross-correlations between source categories in the uncertainty analysis. The same pattern of aggregation should be used both to quantify uncertainties and to identify key source categories unless the associated activity data uncertainties are very different.

Quantitative approaches to identify key source categories

It is good practice for each inventory agency to identify its national key source categories in a systematic and objective manner, by performing a quantitative analysis of the relationships between the level and the trend of each source category's emissions and total national emissions.

Any inventory agency that has developed an emissions inventory will be able to perform the Tier 1 Level Assessment and identify the source categories whose level has a significant effect on total national emissions. Those inventory agencies that have developed emissions inventories for more than one year will also be able to perform the Tier 1 Trend Assessment and identify sources that are key because of their contribution to the total trend of national emissions. Both assessments are described in detail in the *Good Practice Guidance*.

For CO₂ emissions from stationary combustion, the *Good Practice Guidance* suggests that the emissions be disaggregated to the level where emission factors are distinguished. In most inventories, this will be the main fuel types. If emission factors are determined independently for some sub-source categories, these should be distinguished in the analysis.

When using the Tier 1 approach, key source categories are identified using a pre-determined cumulative emissions threshold. The pre-determined threshold is

based on an evaluation of several inventories, and is aimed at establishing a general level where 90% of inventory uncertainty will be covered by key source categories.

The Tier 1 method to identify key source categories of the national emissions inventory assesses the impacts of various source categories on the level and, if possible, on the trend. When national inventory estimates are available for several years, it is good practice to assess the contribution of each source category to both the level and trend of the national inventory. If only a single year's inventory is available, only a Level Assessment can be performed.

For the **Tier 1 Level Assessment**, the contribution of each source category to the total national inventory level is calculated according to Equation 1:

EQUATION 1

**Source Category Level Assessment =
Source Category Estimate / Total Estimate**

$$L_{x,t} = E_{x,t} / E_t$$

Where:

$L_{x,t}$ is the Level Assessment for source x in year t

Source category estimate ($E_{x,t}$) is the emission estimate of source category x in year t

Total estimate (E_t) is the total inventory estimate in year t

The value of the source category Level Assessment should be calculated separately for each source category, and the cumulative sum of all the entries is calculated. Key source categories are those that, when summed together in descending order of magnitude, add up to over 95% of the total. Any source category that meets the 95% threshold in any year should be identified as a key source category.

The **Tier 1 Trend Assessment** calculates the contribution of each source category trend to the trend in the total national inventory. This assessment will identify source categories that have a different trend to the trend of the overall inventory. As differences in trend are more significant to the overall inventory level for larger source categories, the result of the trend difference (i.e. the source category trend minus

total trend) is multiplied by the result of the level assessment ($L_{x,t}$ from Equation 1) to provide appropriate weighting. Thus, key source categories will be those where the source category trend diverges significantly from the total trend, weighted by the emission level of the source category.

If nationally derived source-level uncertainties are available, inventory agencies can use **Tier 2** to identify

key source categories. The Tier 2 approach is a more detailed analysis that builds on the Tier 1 approach, and it is likely to reduce the number of key source categories. Under Tier 2, the results of the Tier 1 analysis are multiplied by the relative uncertainty of each source category. In this case, the pre-determined threshold applies to the cumulative uncertainty and not to the cumulative emissions. Key source categories are those that together represent 90% of total uncertainty.

PART II:

CO₂ EMISSIONS FROM FUEL COMBUSTION

SUMMARY TABLES

CO₂ emissions: Sectoral Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	14 096.3	15 692.7	18 071.3	18 644.0	20 964.8	21 793.7	23 496.5	27 129.1	28 024.0	28 945.3	29 381.4	40.1%
<i>Annex I Parties</i>	..	..	..	..	13 904.8	13 172.3	13 757.9	14 141.0	14 140.2	14 241.4	13 903.8	-0.0%
<i>Annex II Parties</i>	8 607.3	8 884.2	9 544.4	9 172.9	9 801.0	10 199.1	11 003.6	11 321.4	11 209.4	11 280.4	10 951.8	11.7%
<i>North America</i>	4 630.7	4 738.0	5 088.5	4 948.0	5 301.0	5 604.0	6 230.9	6 330.5	6 228.5	6 333.5	6 146.8	16.0%
<i>Europe</i>	3 059.9	3 092.8	3 350.9	3 106.2	3 153.6	3 136.8	3 220.1	3 348.0	3 348.3	3 284.9	3 222.9	2.2%
<i>Pacific</i>	916.7	1 053.4	1 105.1	1 118.7	1 346.4	1 458.3	1 552.7	1 642.9	1 632.6	1 662.0	1 582.0	17.5%
<i>Annex I EIT</i>	..	..	..	..	3 976.9	2 820.6	2 553.7	2 603.2	2 691.1	2 695.9	2 688.5	-32.4%
<i>Non-Annex I Parties</i>	..	..	..	..	6 447.1	7 924.8	8 915.6	12 044.3	12 890.9	13 668.3	14 444.6	124.0%
<i>Annex I Kyoto Parties</i>	..	..	..	..	8 785.3	7 819.5	7 800.5	8 090.9	8 149.4	8 149.7	7 980.1	-9.2%
Intl. marine bunkers	344.5	328.6	343.9	291.7	354.8	408.7	468.6	522.3	556.6	589.1	578.2	63.0%
Intl. aviation bunkers	168.9	173.4	201.3	224.0	258.2	287.8	354.4	421.6	436.2	446.6	454.8	76.1%
Non-OECD Total	4 248.1	5 426.5	6 856.3	7 728.1	9 307.4	9 542.6	10 197.6	13 282.3	14 189.8	14 939.2	15 718.8	68.9%
OECD Total	9 334.8	9 764.3	10 669.7	10 400.2	11 044.5	11 554.5	12 475.9	12 903.0	12 841.3	12 970.5	12 629.6	14.4%
Canada	339.4	377.1	426.9	402.2	432.3	465.2	532.8	558.8	543.6	570.8	550.9	27.4%
Mexico	97.1	138.8	212.1	251.6	264.9	290.9	345.8	389.8	396.9	417.6	408.3	54.2%
United States	4 291.3	4 360.8	4 661.6	4 545.7	4 868.7	5 138.7	5 698.1	5 771.7	5 684.9	5 762.7	5 595.9	14.9%
OECD N. America	4 727.8	4 876.8	5 300.5	5 199.6	5 565.9	5 894.9	6 576.7	6 720.2	6 625.4	6 751.1	6 555.1	17.8%
Australia	144.1	180.0	208.0	221.0	260.1	285.5	338.8	388.8	393.6	387.2	397.5	52.9%
Japan	758.8	856.3	880.7	878.1	1 064.4	1 147.9	1 184.0	1 220.7	1 205.0	1 242.3	1 151.1	8.2%
Korea	52.1	76.8	124.4	153.3	229.3	358.6	421.0	468.0	476.5	490.3	501.3	118.6%
New Zealand	13.7	17.1	16.4	19.6	22.0	24.9	29.8	33.5	33.9	32.5	33.3	51.5%
OECD Pacific	968.7	1 130.1	1 229.5	1 271.9	1 575.7	1 816.9	1 973.7	2 111.0	2 109.1	2 152.3	2 083.3	32.2%
Austria	48.7	50.2	55.7	54.3	56.5	59.4	61.6	75.0	72.1	69.4	69.3	22.7%
Belgium	116.8	115.6	125.7	101.9	107.9	115.2	118.6	112.6	109.6	106.0	111.0	2.8%
Czech Republic	151.0	152.6	165.8	173.1	155.1	123.7	121.9	119.6	120.7	122.0	116.8	-24.7%
Denmark	55.0	52.5	62.5	60.5	50.4	58.0	50.5	48.1	55.9	51.2	48.4	-4.0%
Finland	39.8	44.4	55.2	48.6	54.4	56.0	54.2	55.5	66.8	64.3	56.6	4.0%
France	431.9	430.6	461.4	360.3	352.3	353.8	376.9	388.3	380.1	373.5	368.2	4.5%
Germany	978.6	975.5	1 055.6	1 014.6	950.4	869.3	827.1	811.3	823.5	801.1	803.9	-15.4%
Greece	25.2	34.5	45.3	54.6	70.1	72.7	87.2	95.0	94.1	97.8	93.4	33.2%
Hungary	60.3	70.7	83.7	80.8	66.7	57.3	54.2	56.4	55.9	54.1	53.0	-20.6%
Iceland	1.4	1.6	1.7	1.6	1.9	1.9	2.1	2.2	2.2	2.3	2.2	17.0%
Ireland	21.7	21.1	25.9	26.4	29.8	32.3	40.9	43.4	44.9	43.8	43.8	46.7%
Italy	292.9	319.6	359.8	347.5	397.4	409.4	426.0	457.0	458.4	441.1	430.1	8.2%
Luxembourg	15.4	12.1	11.9	9.9	10.5	8.2	8.0	11.2	11.2	10.7	10.4	-0.6%
Netherlands	129.6	140.8	166.7	154.0	155.8	170.9	172.1	182.7	178.3	177.5	177.9	14.1%
Norway	23.5	24.1	28.0	27.2	28.3	32.8	33.5	36.3	37.4	38.0	37.6	33.0%
Poland	286.7	338.2	413.1	419.5	343.8	331.4	291.4	293.5	304.8	304.2	298.7	-13.1%
Portugal	14.4	18.1	23.8	24.6	39.3	48.3	59.4	62.7	56.2	55.0	52.4	33.5%
Slovak Republic	39.1	43.8	55.3	54.4	56.7	40.8	37.4	38.1	37.5	36.8	36.2	-36.1%
Spain	120.0	156.6	187.9	175.5	205.8	233.3	283.9	339.7	332.4	344.1	317.6	54.3%
Sweden	82.4	79.4	73.4	58.8	52.8	57.5	52.8	50.3	48.0	46.3	45.9	-13.0%
Switzerland	38.9	36.7	39.2	41.4	40.7	41.0	41.7	44.5	44.1	42.2	43.7	7.4%
Turkey	41.4	59.2	70.9	94.6	126.9	152.7	200.6	216.4	239.7	265.0	263.5	107.6%
United Kingdom	623.5	579.5	571.1	544.5	549.3	516.6	523.6	532.3	533.3	520.5	510.6	-7.0%
OECD Europe	3 638.3	3 757.4	4 139.7	3 928.7	3 902.9	3 842.6	3 925.5	4 071.8	4 106.8	4 067.0	3 991.2	2.3%
<i>European Union - 27</i>	..	..	..	..	4 053.5	3 844.7	3 831.0	3 973.2	3 988.2	3 929.6	3 849.5	-5.0%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

CO₂ emissions: Sectoral Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	4 248.1	5 426.5	6 856.3	7 728.1	9 307.4	9 542.6	10 197.6	13 282.3	14 189.8	14 939.2	15 718.8	68.9%
Algeria	8.7	14.0	28.4	43.2	51.7	55.6	62.4	78.5	81.7	85.7	88.1	70.5%
Angola	1.7	2.0	2.7	2.9	4.0	4.0	5.1	7.0	8.7	9.3	10.6	163.4%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.5	3.0	3.1	3.3	+
Botswana	..	..	..	1.6	2.9	3.3	4.2	4.3	4.3	4.4	4.5	53.9%
Cameroon	0.7	1.0	1.7	2.4	2.7	2.5	2.8	2.9	3.1	4.6	4.3	60.6%
Congo	0.6	0.7	0.8	0.8	0.7	0.5	0.6	0.9	1.1	1.2	1.5	112.8%
Dem. Rep. of Congo	2.5	2.6	3.1	3.2	3.0	2.1	1.7	2.3	2.4	2.6	2.8	-4.4%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.6	3.2	6.1	5.8	5.8	5.7	6.5	145.5%
Egypt	20.4	25.9	42.3	65.5	79.2	84.0	110.2	151.9	160.1	168.7	174.0	119.7%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.5	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.3	3.2	4.8	5.3	6.0	6.8	209.1%
Gabon	0.5	0.7	1.3	1.7	0.9	1.3	1.4	2.1	2.1	2.6	3.0	230.8%
Ghana	1.9	2.3	2.3	2.2	2.7	3.3	5.1	6.4	7.8	8.2	7.3	170.6%
Kenya	3.2	3.5	4.5	4.6	5.5	5.6	6.8	7.3	8.3	8.3	8.6	56.5%
Libyan Arab Jamahiriya	3.7	9.2	18.6	22.5	27.4	35.1	39.7	42.5	42.5	43.1	44.8	64.0%
Morocco	6.8	9.9	14.0	16.5	19.6	25.3	28.3	38.6	39.0	40.5	42.1	114.3%
Mozambique	2.9	2.3	2.3	1.5	1.1	1.1	1.3	1.5	1.6	2.0	1.9	78.6%
Namibia	..	..	..	..	..	1.8	1.9	2.8	3.0	3.1	3.9	..
Nigeria	5.9	11.7	26.7	32.4	29.2	30.4	40.1	51.4	48.8	47.7	52.4	79.6%
Senegal	1.2	1.6	2.0	2.1	2.0	2.5	3.6	4.6	4.5	5.0	5.1	152.1%
South Africa	173.8	209.2	214.5	229.1	254.7	276.9	298.5	330.9	332.1	342.7	337.4	32.5%
Sudan	3.3	3.3	3.7	4.2	5.5	4.6	5.5	10.0	11.2	12.0	12.1	119.1%
United Rep. of Tanzania	1.5	1.5	1.6	1.5	1.7	2.5	2.6	5.1	5.6	5.5	5.8	239.7%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	0.9	0.9	1.1	93.7%
Tunisia	3.7	4.8	7.8	9.6	12.1	14.2	18.0	19.5	19.6	20.3	20.7	71.7%
Zambia	3.4	4.4	3.4	2.8	2.6	2.0	1.7	2.1	2.0	1.4	1.6	-38.8%
Zimbabwe	7.2	7.2	8.0	9.6	16.0	14.8	12.7	10.4	9.9	9.3	8.8	-45.1%
Other Africa	7.6	9.2	13.3	12.0	14.9	17.4	20.0	25.5	26.3	28.7	30.4	104.8%
Africa	265.7	332.1	408.3	477.1	545.6	598.2	686.3	823.4	841.3	873.2	889.9	63.1%
Bahrain	3.0	5.3	7.4	10.4	11.7	11.6	14.1	18.1	20.1	21.2	22.3	90.6%
Islamic Rep. of Iran	43.9	77.6	93.9	148.1	180.2	253.1	310.6	410.5	451.4	482.8	505.0	180.2%
Iraq	12.3	15.6	32.3	43.8	52.8	71.8	81.8	85.4	88.8	89.8	97.4	84.3%
Israel	14.4	17.1	19.6	24.5	33.1	45.8	54.8	60.2	61.7	64.7	63.1	90.4%
Jordan	1.3	2.1	4.2	7.4	9.2	12.1	14.3	17.9	18.3	19.2	18.4	100.1%
Kuwait	23.2	22.9	30.8	37.8	24.3	41.0	50.2	74.3	66.7	66.9	69.5	185.4%
Lebanon	4.6	5.7	6.6	7.7	6.4	12.6	14.2	15.8	13.3	11.4	15.2	138.5%
Oman	0.3	0.7	2.2	5.5	9.9	14.4	19.8	28.0	30.5	32.6	34.9	251.8%
Qatar	2.2	4.9	7.8	12.5	14.5	19.1	24.3	37.6	43.3	49.4	53.9	272.7%
Saudi Arabia	13.3	23.7	101.3	129.0	161.3	204.4	251.0	320.6	338.8	356.8	389.2	141.3%
Syrian Arab Republic	6.8	10.3	15.1	23.6	31.0	38.6	45.8	47.7	50.8	53.7	54.4	75.7%
United Arab Emirates	2.4	4.9	19.1	35.4	51.6	70.0	86.1	110.0	115.7	130.6	146.9	184.7%
Yemen	1.2	1.7	3.4	4.8	6.4	9.3	13.2	18.8	19.7	20.5	21.9	241.0%
Middle East	129.1	192.3	343.7	490.4	592.5	803.8	979.9	1 245.0	1 319.2	1 399.6	1 492.3	151.8%
Albania	3.9	4.5	7.6	7.2	6.2	1.9	3.2	4.6	4.1	4.0	3.9	-38.2%
Bosnia and Herzegovina *	..	..	..	..	23.6	3.3	13.7	15.7	17.2	18.0	19.5	-17.3%
Bulgaria	62.8	72.2	83.8	81.1	74.9	53.4	42.0	45.8	47.2	50.3	48.8	-34.9%
Croatia *	..	..	..	..	21.6	15.8	17.7	20.7	20.7	22.0	20.9	-3.0%
Cyprus	1.8	1.7	2.6	2.8	3.8	5.2	6.3	7.0	7.1	7.3	7.6	97.1%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.5	0.5	172.9%
FYR of Macedonia *	..	..	..	..	8.5	8.2	8.4	8.8	8.8	9.2	9.0	5.2%
Malta	0.6	0.6	1.0	1.1	2.3	2.4	2.1	2.7	2.6	2.7	2.6	12.0%
Romania	114.9	140.6	176.1	173.3	167.1	117.1	86.3	91.7	94.9	91.9	89.9	-46.2%
Serbia *	..	..	..	..	61.4	44.0	42.5	45.3	48.1	49.8	49.2	-19.9%
Slovenia *	..	..	..	..	12.5	13.3	14.1	15.6	15.9	15.8	16.7	33.8%
Former Yugoslavia *	63.2	75.2	87.6	121.7	-	-	-	-	-	-	-	-
Non-OECD Europe	247.3	294.8	358.8	387.3	382.2	264.9	236.6	258.3	266.9	271.5	268.6	-29.7%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions: Sectoral Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	20.5	3.4	3.4	4.1	4.1	4.8	5.3	-74.3%
Azerbaijan	..	..	..	..	63.2	31.5	29.4	32.0	30.2	27.3	29.3	-53.7%
Belarus	..	..	..	..	124.0	61.4	58.7	62.1	66.2	64.0	64.2	-48.2%
Estonia	..	..	..	..	36.0	16.1	14.6	16.9	15.5	19.3	17.6	-51.1%
Georgia	..	..	..	..	28.7	7.1	4.4	4.3	4.8	5.4	4.7	-83.6%
Kazakhstan	..	..	..	..	236.4	167.0	123.3	165.2	185.7	190.5	201.6	-14.7%
Kyrgyzstan	..	..	..	..	22.5	4.4	4.5	5.0	4.8	6.1	5.9	-73.6%
Latvia	..	..	..	..	18.6	8.8	6.8	7.6	8.0	8.3	7.9	-57.5%
Lithuania	..	..	..	..	33.1	14.2	11.2	13.5	13.7	14.5	14.2	-57.0%
Republic of Moldova	..	..	..	..	30.2	10.9	6.5	7.9	7.4	7.5	7.1	-76.6%
Russian Federation	..	..	..	..	2 178.8	1 574.5	1 505.5	1 516.2	1 579.8	1 578.5	1 593.8	-26.8%
Tajikistan	..	..	..	..	10.9	2.4	2.2	2.4	2.6	3.2	3.0	-72.2%
Turkmenistan	..	..	..	..	46.6	34.4	36.2	41.4	41.8	45.8	47.3	1.4%
Ukraine	..	..	..	..	687.9	392.8	292.0	305.7	310.5	314.2	309.6	-55.0%
Uzbekistan	..	..	..	..	119.8	101.6	117.6	108.4	112.3	112.3	114.9	-4.1%
Former Soviet Union *	1 995.8	2 567.9	3 056.0	3 197.5	3 657.1	2 430.6	2 216.1	2 292.5	2 387.4	2 401.6	2 426.5	-33.7%
Argentina	83.1	85.9	95.9	88.6	100.4	118.2	139.0	151.0	160.5	166.8	173.8	73.1%
Bolivia	2.1	3.2	4.3	4.5	5.4	8.2	7.6	9.8	10.0	12.3	12.9	136.3%
Brazil	91.1	137.2	180.3	168.0	194.3	240.4	301.6	325.7	330.7	344.7	364.6	87.7%
Chile	20.8	17.0	21.2	19.4	32.0	40.6	54.4	62.8	64.8	71.7	73.0	128.1%
Colombia	26.2	28.3	33.8	38.3	45.0	58.0	58.7	56.9	57.0	57.2	60.0	33.5%
Costa Rica	1.3	1.7	2.2	2.0	2.6	4.4	4.5	5.4	5.9	6.6	6.6	152.5%
Cuba	18.4	25.4	28.5	30.6	27.6	22.1	24.8	25.9	25.3	25.8	30.5	10.7%
Dominican Republic	3.4	5.2	6.3	6.2	7.7	11.4	17.4	17.5	18.6	19.2	19.6	155.0%
Ecuador	3.7	6.2	10.6	12.1	13.2	16.3	18.5	23.6	25.4	25.8	25.9	96.3%
El Salvador	1.3	2.0	1.7	1.7	2.2	4.7	5.2	5.9	5.8	6.2	5.8	169.2%
Guatemala	2.3	3.0	4.2	3.3	3.3	6.0	8.8	11.0	11.1	11.7	10.6	221.6%
Haiti	0.4	0.4	0.6	0.8	0.9	0.9	1.4	2.0	2.0	2.3	2.3	147.5%
Honduras	1.1	1.3	1.7	1.7	2.1	3.5	4.4	6.9	6.4	8.2	7.8	265.4%
Jamaica	5.5	7.4	6.5	4.6	7.2	8.4	9.8	10.6	11.8	12.7	11.9	66.3%
Netherlands Antilles	14.4	10.2	8.7	4.6	2.7	2.8	4.1	4.2	4.1	4.5	4.4	62.0%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.1	4.0	4.4	4.1	125.9%
Panama	2.5	3.2	2.9	2.6	2.5	4.1	4.7	5.7	6.5	6.5	6.5	165.6%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.4	3.3	3.4	3.6	3.7	3.7	92.1%
Peru	15.6	18.4	20.5	18.2	19.2	23.7	26.4	28.5	28.0	30.3	34.9	81.5%
Trinidad and Tobago	6.1	5.8	7.9	9.6	11.4	12.3	17.9	30.7	38.6	36.7	38.0	233.9%
Uruguay	5.2	5.5	5.6	3.1	3.7	4.5	5.3	5.3	6.1	5.7	7.6	103.2%
Venezuela	52.1	62.8	92.4	95.2	105.1	118.3	126.7	136.5	143.5	143.1	145.7	38.6%
Other Latin America	7.8	10.8	10.2	9.2	12.4	13.4	15.1	17.0	17.4	17.6	17.9	44.1%
Latin America	366.6	443.6	549.3	527.4	604.6	728.2	863.4	950.3	987.2	1 023.8	1 068.2	76.7%
Bangladesh	3.2	4.7	7.2	8.8	13.6	20.5	25.3	36.5	39.3	42.0	46.4	242.4%
Brunei Darussalam	0.4	1.4	2.6	2.9	3.4	4.7	4.6	5.1	7.5	7.1	7.5	122.8%
Cambodia	..	..	..	..	..	1.4	2.4	3.7	4.1	4.4	4.6	..
Chinese Taipei	31.0	42.5	72.2	71.7	114.7	157.8	219.4	262.0	270.0	276.2	264.3	130.5%
India	199.4	240.3	292.7	420.2	591.0	785.0	981.3	1 159.5	1 249.9	1 337.9	1 427.6	141.6%
Indonesia	25.1	38.0	69.1	84.8	140.5	192.4	268.2	324.2	338.6	364.8	385.4	174.2%
DPR of Korea	67.5	76.7	105.6	126.4	114.0	74.9	68.8	74.3	75.4	62.3	69.4	-39.2%
Malaysia	12.7	16.1	24.2	33.4	48.9	78.5	111.1	152.8	158.1	169.9	180.9	269.7%
Mongolia	..	..	..	11.6	12.7	10.1	8.8	9.6	10.6	11.3	11.4	-9.9%
Myanmar	4.5	3.9	5.1	5.8	4.0	6.7	8.1	13.4	12.1	12.4	11.7	194.3%
Nepal	0.2	0.3	0.5	0.5	0.9	1.7	3.1	3.0	3.1	3.2	3.3	276.6%
Pakistan	16.6	20.9	26.4	39.5	59.1	80.1	97.8	118.9	127.6	139.7	133.8	126.5%
Philippines	23.1	29.0	33.1	27.7	39.5	59.0	69.9	72.1	67.7	71.8	72.3	82.9%
Singapore	6.0	8.4	12.7	16.3	28.8	37.9	42.7	44.6	44.0	44.1	44.3	53.9%
Sri Lanka	2.8	2.7	3.7	3.6	3.7	5.5	10.6	13.4	11.9	13.0	12.2	226.3%
Thailand	17.2	21.9	34.2	40.5	78.6	141.3	159.5	214.1	217.1	225.5	229.5	192.0%
Vietnam	16.1	16.7	14.8	17.2	17.3	28.0	44.5	81.6	86.1	94.0	103.0	495.7%
Other Asia	8.4	10.2	16.5	10.1	10.2	9.3	11.3	15.6	15.2	14.2	15.3	48.9%
Asia	434.1	533.7	720.4	921.0	1 280.8	1 694.9	2 137.5	2 604.5	2 738.5	2 893.8	3 022.8	136.0%
People's Rep. of China	800.4	1 051.2	1 405.3	1 704.9	2 211.3	2 986.1	3 037.9	5 067.6	5 607.6	6 032.3	6 508.2	194.3%
Hong Kong, China	9.2	10.8	14.5	22.3	33.1	36.0	39.8	40.7	41.7	43.4	42.2	27.7%
China	809.6	1 062.0	1 419.8	1 727.2	2 244.4	3 022.1	3 077.8	5 108.3	5 649.3	6 075.7	6 550.5	191.9%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions: Sectoral Approach - Coal/peatmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	5 199.2	5 607.2	6 568.6	7 377.2	8 310.3	8 538.5	8 822.6	11 012.6	11 695.2	12 224.8	12 595.3	51.6%
<i>Annex I Parties</i>	..	..	..	..	5 111.9	4 594.3	4 712.1	4 762.5	4 840.2	4 878.7	4 713.6	-7.8%
<i>Annex II Parties</i>	2 645.9	2 604.8	2 962.8	3 318.4	3 486.7	3 399.1	3 657.0	3 749.2	3 750.6	3 782.1	3 633.9	4.2%
<i>North America</i>	1 140.5	1 253.0	1 481.2	1 725.0	1 896.2	1 999.7	2 252.2	2 239.5	2 210.3	2 237.1	2 197.9	15.9%
<i>Europe</i>	1 234.0	1 059.0	1 182.9	1 224.1	1 155.4	922.6	842.1	848.9	871.8	870.8	791.6	-31.5%
<i>Pacific</i>	271.5	292.9	298.7	369.4	435.1	476.8	562.6	660.8	668.5	674.1	644.4	48.1%
<i>Annex I EIT</i>	..	..	..	..	1 567.3	1 134.5	966.2	927.0	987.9	981.2	964.3	-38.5%
<i>Non-Annex I Parties</i>	..	..	..	..	3 198.5	3 944.1	4 110.5	6 250.1	6 854.9	7 346.1	7 881.7	146.4%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 247.4	2 632.0	2 494.5	2 550.2	2 643.0	2 643.2	2 510.6	-22.7%
Intl. marine bunkers	0.1	..	..	..	..	-	-	-	-	-	-	..
Intl. aviation bunkers	..	..	..	..	..	-	-	-	-	-	-	..
Non-OECD Total	2 070.7	2 476.5	2 974.7	3 358.2	4 202.7	4 560.5	4 560.4	6 632.1	7 279.1	7 756.9	8 271.6	96.8%
OECD Total	3 128.4	3 130.6	3 593.9	4 019.1	4 107.6	3 977.9	4 262.2	4 380.5	4 416.1	4 467.9	4 323.7	5.3%
Canada	61.7	56.6	80.5	99.4	98.8	103.3	127.0	115.8	117.0	119.1	112.2	13.5%
Mexico	5.2	6.6	7.2	11.6	14.2	21.5	27.0	40.0	37.1	39.2	30.9	117.0%
United States	1 078.7	1 196.4	1 400.7	1 625.5	1 797.4	1 896.4	2 125.1	2 123.7	2 093.3	2 118.1	2 085.7	16.0%
OECD N. America	1 145.6	1 259.6	1 488.5	1 736.6	1 910.4	2 021.2	2 279.2	2 279.6	2 247.3	2 276.3	2 228.7	16.7%
Australia	73.2	90.3	104.0	116.7	137.1	152.4	189.3	222.4	228.3	218.1	222.7	62.4%
Japan	194.1	197.7	190.8	248.8	293.4	319.9	369.1	429.8	431.6	449.9	413.8	41.0%
Korea	21.2	30.6	48.1	80.2	86.3	101.6	156.9	193.9	204.8	211.3	236.1	173.5%
New Zealand	4.2	4.8	3.8	3.9	4.5	4.5	4.2	8.6	8.6	6.2	7.8	72.3%
OECD Pacific	292.7	323.5	346.8	449.5	521.4	578.4	719.6	854.7	873.3	885.4	880.5	68.9%
Austria	15.9	13.5	13.7	16.9	16.1	13.8	14.4	15.9	15.9	15.4	15.1	-5.6%
Belgium	42.2	37.0	40.2	37.8	39.0	33.4	29.0	19.1	17.7	16.7	16.7	-57.1%
Czech Republic	129.2	121.7	129.5	136.1	120.7	88.5	83.9	76.2	77.9	79.9	75.2	-37.7%
Denmark	6.0	8.0	23.8	28.4	23.7	25.3	15.4	14.4	21.6	18.1	15.9	-32.8%
Finland	8.4	9.3	19.6	19.8	21.1	23.2	20.9	20.0	30.7	29.0	22.3	5.4%
France	135.3	104.2	121.2	91.3	73.6	57.5	57.5	53.7	50.5	53.3	48.7	-33.7%
Germany	554.1	494.5	552.2	580.7	504.6	370.1	337.2	331.9	339.3	349.9	328.3	-34.9%
Greece	6.8	11.0	13.4	24.9	33.4	33.3	37.4	37.8	34.7	36.6	34.6	3.5%
Hungary	34.9	32.9	36.3	34.5	24.2	17.0	15.2	12.2	11.9	11.9	11.6	-52.0%
Iceland	0.0	-	0.1	0.3	0.3	0.2	0.4	0.4	0.4	0.5	0.3	30.6%
Ireland	8.8	7.1	8.0	10.5	13.7	11.6	10.3	10.3	9.4	8.8	9.1	-33.8%
Italy	31.7	30.2	43.0	58.1	55.1	44.9	43.3	62.8	69.8	61.0	58.9	7.0%
Luxembourg	11.3	7.5	7.9	6.3	5.0	2.1	0.5	0.3	0.4	0.3	0.3	-94.3%
Netherlands	14.4	11.5	13.8	23.1	31.8	33.1	29.1	30.3	28.8	31.4	29.8	-6.3%
Norway	3.7	3.9	3.9	4.4	3.4	4.1	4.2	3.0	2.6	2.9	3.0	-12.3%
Poland	252.5	289.7	350.9	359.8	286.9	268.4	217.3	207.2	216.0	212.3	205.4	-28.4%
Portugal	2.4	1.6	1.6	2.9	10.6	13.9	14.7	13.1	13.0	11.2	9.8	-7.8%
Slovak Republic	23.5	23.7	32.0	33.3	30.7	21.1	16.0	15.6	16.2	15.8	15.1	-50.6%
Spain	36.9	37.5	47.9	69.4	74.1	71.8	81.5	80.2	69.3	78.7	53.4	-27.9%
Sweden	5.4	6.9	5.4	10.6	10.4	9.4	8.1	9.8	9.0	8.9	8.9	-14.5%
Switzerland	2.0	1.0	1.4	2.0	1.4	0.8	0.6	0.6	0.6	0.7	0.6	-54.4%
Turkey	16.0	20.7	26.8	45.1	57.9	60.7	88.9	86.3	101.7	115.4	115.4	99.5%
United Kingdom	348.4	274.2	266.1	236.8	238.2	174.1	137.9	145.0	158.2	147.5	135.9	-43.0%
OECD Europe	1 690.1	1 547.6	1 758.6	1 833.0	1 675.7	1 378.3	1 263.4	1 246.3	1 295.4	1 306.2	1 214.5	-27.5%
<i>European Union - 27</i>	..	..	..	..	1 735.7	1 401.4	1 240.5	1 236.3	1 273.2	1 276.4	1 180.9	-32.0%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

CO₂ emissions: Sectoral Approach - Coal/peatmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	2 070.7	2 476.5	2 974.7	3 358.2	4 202.7	4 560.5	4 560.4	6 632.1	7 279.1	7 756.9	8 271.6	96.8%
Algeria	0.4	0.3	0.2	1.0	1.3	1.4	0.7	1.0	1.0	1.2	1.2	-6.2%
Angola	-	-	-	-	-	-	-	-	-	-	-	-
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	1.1	1.9	2.2	2.5	2.3	2.2	2.1	1.9	-2.2%
Cameroon	-	-	-	-	-	-	-	-	-	-	-	-
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	1.0	0.8	0.8	0.8	0.9	1.0	0.8	1.0	1.0	1.1	1.2	33.1%
Côte d'Ivoire	-	-	-	-	-	-	-	-	-	-	-	-
Egypt	1.3	2.1	2.1	2.7	2.7	2.8	3.3	3.2	3.1	3.1	3.0	10.7%
Eritrea	..	..	..	..	..	-	-	-	-	-	-	..
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	0.2	0.1	0.0	0.2	0.4	0.2	0.2	0.2	0.3	0.3	0.3	-26.5%
Libyan Arab Jamahiriya	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	1.2	1.7	1.6	2.7	4.1	6.1	9.2	11.3	11.3	11.5	10.2	147.5%
Mozambique	1.5	1.2	0.7	0.2	0.1	0.1	-	-	-	0.0	0.0	-82.8%
Namibia	..	..	..	..	..	0.0	0.0	0.0	0.1	0.2	0.9	..
Nigeria	0.5	0.6	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-89.5%
Senegal	-	-	-	-	-	-	-	0.4	0.4	0.5	0.5	x
South Africa	146.3	175.1	179.4	189.5	208.3	227.3	248.1	271.1	272.3	279.5	275.1	32.1%
Sudan	-	-	0.0	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	+
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-	-	-	-	..
Zambia	2.0	1.9	1.4	1.1	0.9	0.3	0.3	0.3	0.1	0.0	0.0	-99.5%
Zimbabwe	5.6	5.0	6.1	7.5	13.4	11.2	9.7	8.3	7.9	7.4	6.9	-48.1%
Other Africa	0.5	0.7	0.7	0.9	1.1	1.1	1.7	1.8	2.2	2.7	2.9	164.0%
Africa	160.7	190.0	193.7	208.4	235.5	254.2	276.8	301.1	302.1	309.8	304.3	29.2%
Bahrain	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Rep. of Iran	0.7	3.8	3.5	2.9	2.1	3.1	3.8	3.7	4.0	4.7	3.7	73.8%
Iraq	-	-	-	-	-	-	-	-	-	-	-	-
Israel	0.0	0.0	0.0	7.2	8.9	15.7	24.4	30.1	29.9	31.3	29.6	233.5%
Jordan	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	0.0	0.0	0.0	-	-	0.5	0.5	0.5	0.5	0.5	0.5	x
Oman	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	-	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	x
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
Middle East	0.8	3.9	3.6	10.1	11.0	19.3	28.7	34.3	34.5	36.5	33.8	207.4%
Albania	1.2	1.6	2.5	3.7	2.4	0.1	0.1	0.1	0.1	0.1	0.1	-96.0%
Bosnia and Herzegovina *	..	..	..	..	17.3	1.4	9.9	11.7	13.0	13.6	15.0	-13.6%
Bulgaria	33.2	35.0	37.8	42.2	36.8	29.7	25.3	27.6	28.0	31.3	30.5	-17.1%
Croatia *	..	..	..	..	3.4	0.7	1.7	2.7	2.5	2.7	2.8	-18.1%
Cyprus	-	-	-	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	-52.7%
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
FYR of Macedonia *	..	..	..	..	5.5	5.9	5.6	6.1	5.9	6.0	6.1	12.0%
Malta	-	-	-	0.5	0.7	0.1	-	-	-	-	-	..
Romania	31.2	38.0	48.9	57.6	49.7	40.5	28.7	33.2	36.6	36.1	34.9	-29.9%
Serbia *	..	..	..	..	41.3	36.2	35.0	30.6	33.0	33.2	34.4	-16.7%
Slovenia *	..	..	..	..	5.7	4.9	5.5	6.3	6.4	6.5	6.2	9.9%
Former Yugoslavia *	35.8	40.5	42.6	72.4	-	-	-	-	-	-	-	-
Non-OECD Europe	101.4	115.0	131.7	176.5	163.1	119.8	111.9	118.4	125.7	129.7	130.1	-20.2%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions: Sectoral Approach - Coal/peatmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	1.0	0.0	-	-	0.0	0.0	-	..
Azerbaijan	..	..	..	..	0.3	0.0	-	-	-	-	-	..
Belarus	..	..	..	..	9.3	5.2	3.6	2.3	2.2	2.0	1.9	-79.5%
Estonia	..	..	..	..	24.0	11.3	10.5	12.0	10.6	14.2	12.9	-46.3%
Georgia	..	..	..	..	2.2	0.1	0.0	0.0	0.0	0.1	0.2	-90.7%
Kazakhstan	..	..	..	..	153.3	111.1	80.0	99.7	112.1	111.0	110.4	-27.9%
Kyrgyzstan	..	..	..	..	10.0	1.3	1.9	2.2	2.0	2.1	2.2	-77.8%
Latvia	..	..	..	..	2.7	1.1	0.5	0.3	0.3	0.4	0.4	-85.0%
Lithuania	..	..	..	..	3.1	1.0	0.4	0.8	1.1	1.0	0.9	-72.2%
Republic of Moldova	..	..	..	..	7.8	2.3	0.4	0.3	0.3	0.2	0.3	-95.5%
Russian Federation	..	..	..	..	687.1	483.9	441.4	407.3	437.2	418.8	421.7	-38.6%
Tajikistan	..	..	..	..	2.5	0.1	0.0	0.2	0.2	0.3	0.4	-85.8%
Turkmenistan	..	..	..	..	1.2	-	-	-	-	-	-	..
Ukraine	..	..	..	..	283.0	161.2	116.3	123.5	141.1	148.1	144.8	-48.8%
Uzbekistan	..	..	..	..	13.7	4.4	5.1	4.6	4.9	5.2	5.1	-62.7%
Former Soviet Union *	875.2	1 028.9	1 141.8	982.9	1 201.2	782.9	660.2	653.2	712.2	703.6	701.2	-41.6%
Argentina	3.5	3.7	3.3	3.7	3.9	4.9	4.5	5.2	6.3	6.5	7.7	97.1%
Bolivia	-	-	-	0.2	-	-	-	-	-	-	-	-
Brazil	7.0	8.7	17.8	30.1	29.1	36.7	43.7	47.7	47.7	49.3	50.0	71.6%
Chile	5.0	3.5	4.7	4.8	9.5	8.7	11.4	10.0	12.5	14.5	16.5	74.0%
Colombia	5.6	6.6	7.5	8.8	10.7	12.4	11.4	9.7	8.9	9.5	9.6	-9.8%
Costa Rica	0.0	0.0	0.0	0.0	0.0	-	-	0.1	0.2	0.3	0.3	+
Cuba	0.4	0.3	0.4	0.7	0.7	0.6	0.4	0.4	0.4	0.4	0.4	-44.7%
Dominican Republic	-	-	-	0.5	0.0	0.2	0.2	1.1	2.0	2.1	2.2	+
Ecuador	-	-	-	-	-	-	-	-	-	-	-	-
El Salvador	-	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Guatemala	-	-	0.1	-	-	-	0.5	1.4	1.5	1.6	1.6	x
Haiti	-	-	-	0.1	0.0	-	-	-	-	-	-	..
Honduras	-	-	-	-	0.0	0.0	0.3	0.4	0.5	0.5	0.5	+
Jamaica	-	-	-	-	0.1	0.1	0.2	0.1	0.1	0.1	0.1	-7.7%
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	0.0	0.0	-	0.1	0.1	0.1	0.1	-	-	-	-	..
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.5	0.6	0.6	0.7	0.6	1.4	2.4	3.5	3.0	4.1	3.7	539.3%
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Uruguay	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-80.4%
Venezuela	0.6	1.0	0.6	0.7	1.8	0.0	0.5	0.1	0.1	0.2	0.1	-92.2%
Other Latin America	0.1	0.1	0.1	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	299.9%
Latin America	22.7	24.5	35.2	50.5	56.7	65.1	75.7	79.9	83.2	89.0	92.9	64.0%
Bangladesh	0.4	0.5	0.5	0.2	1.1	1.2	1.3	1.4	1.8	1.7	2.4	123.3%
Brunei Darussalam	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	..	..	..	..	..	..	..	..	..	..	..
Chinese Taipei	10.0	8.4	14.7	26.4	42.6	64.5	111.1	146.8	154.1	160.6	153.0	258.7%
India	142.6	176.1	206.0	294.6	406.3	528.0	635.1	782.1	844.6	909.9	977.7	140.6%
Indonesia	0.5	0.5	0.8	1.5	11.7	17.5	49.0	90.1	114.2	132.9	145.1	+
DPR of Korea	64.9	72.5	97.5	119.0	106.1	70.9	65.7	71.4	78.3	59.7	66.7	-37.2%
Malaysia	0.0	0.0	0.2	1.1	4.0	4.8	6.9	26.7	28.3	34.3	38.0	842.7%
Mongolia	..	..	..	9.4	10.2	9.0	7.5	7.9	8.8	9.0	8.9	-13.1%
Myanmar	0.6	0.6	0.6	0.6	0.3	0.1	0.2	0.4	0.5	0.5	0.5	106.4%
Nepal	0.0	0.1	0.2	0.0	0.2	0.3	1.0	1.0	1.0	1.0	1.1	558.6%
Pakistan	2.5	2.2	2.9	5.2	7.5	8.4	7.2	15.4	17.0	22.2	17.6	133.9%
Philippines	0.1	0.2	1.4	4.7	5.5	7.8	20.7	22.7	23.0	25.2	27.5	403.0%
Singapore	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	77.5%
Sri Lanka	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.2	938.0%
Thailand	0.5	0.6	1.9	6.5	16.1	29.4	31.4	46.9	49.8	56.0	60.3	275.6%
Vietnam	5.6	10.0	9.2	11.3	9.0	13.4	17.6	32.8	36.5	39.9	47.5	429.6%
Other Asia	4.1	4.3	7.7	0.9	0.8	0.5	1.3	1.9	1.5	1.6	1.8	112.4%
Asia	231.9	276.2	343.6	481.6	621.6	756.0	956.2	1 247.9	1 354.9	1 455.1	1 548.5	149.1%
People's Rep. of China	677.9	837.9	1 125.0	1 435.4	1 889.3	2 538.9	2 433.1	4 170.0	4 637.9	5 002.6	5 432.3	187.5%
Hong Kong, China	0.1	0.1	0.2	12.8	24.4	24.4	17.7	27.2	28.6	30.7	28.5	16.9%
China	678.0	838.1	1 125.2	1 448.1	1 913.7	2 563.2	2 450.9	4 197.3	4 666.5	5 033.2	5 460.8	185.4%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions: Sectoral Approach - Oilmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	6 837.8	7 800.3	8 730.2	8 097.5	8 806.3	9 076.7	9 883.2	10 689.9	10 764.2	10 899.9	10 821.0	22.9%
<i>Annex I Parties</i>	..	..	..	..	5 685.9	5 331.7	5 486.8	5 648.9	5 557.3	5 488.9	5 298.6	-6.8%
<i>Annex II Parties</i>	4 522.9	4 773.7	4 914.7	4 232.8	4 485.8	4 625.9	4 852.0	5 019.4	4 908.9	4 830.4	4 632.9	3.3%
<i>North America</i>	2 232.9	2 341.6	2 427.9	2 164.8	2 251.2	2 265.8	2 517.9	2 705.0	2 647.5	2 630.5	2 490.2	10.6%
<i>Europe</i>	1 657.7	1 700.3	1 750.2	1 431.1	1 478.2	1 562.1	1 566.8	1 573.3	1 557.6	1 492.9	1 483.0	0.3%
<i>Pacific</i>	632.3	731.8	736.6	636.9	756.5	798.0	767.4	741.1	703.8	707.0	659.7	-12.8%
<i>Annex I EIT</i>	..	..	..	..	1 137.6	626.8	552.1	552.4	571.1	580.0	587.9	-48.3%
<i>Non-Annex I Parties</i>	..	..	..	..	2 507.4	3 048.4	3 573.4	4 097.2	4 214.0	4 375.3	4 489.4	79.0%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 493.8	3 168.6	3 101.0	3 118.1	3 067.1	3 025.8	2 972.4	-14.9%
Intl. marine bunkers	344.4	328.6	343.9	291.7	354.8	408.7	468.6	522.3	556.6	589.1	578.2	63.0%
Intl. aviation bunkers	168.9	173.4	201.3	224.0	258.2	287.8	354.4	421.6	436.2	446.6	454.8	76.1%
Non-OECD Total	1 600.6	2 229.6	2 867.1	2 931.6	3 216.1	3 139.4	3 558.0	4 075.5	4 218.0	4 372.2	4 516.0	40.4%
OECD Total	4 723.9	5 068.7	5 317.9	4 650.2	4 977.2	5 240.8	5 502.2	5 670.6	5 553.3	5 492.0	5 272.0	5.9%
Canada	209.8	233.2	246.7	188.8	209.4	212.2	237.1	272.2	258.9	267.8	262.9	25.5%
Mexico	71.7	106.5	161.6	186.5	198.6	213.6	252.1	261.4	259.6	270.4	265.0	33.5%
United States	2 023.0	2 108.4	2 181.2	1 976.0	2 041.8	2 053.5	2 280.8	2 432.8	2 388.6	2 362.7	2 227.3	9.1%
OECD N. America	2 304.6	2 448.1	2 589.5	2 351.3	2 449.7	2 479.3	2 770.0	2 966.4	2 907.1	2 900.9	2 755.2	12.5%
Australia	66.8	80.8	87.3	79.9	89.3	94.6	104.7	110.3	108.7	110.3	112.9	26.5%
Japan	556.2	639.4	638.6	547.4	655.4	689.5	647.1	613.0	577.0	578.6	528.8	-19.3%
Korea	30.9	46.2	76.2	73.1	135.3	234.1	219.6	203.8	196.2	197.5	181.1	33.8%
New Zealand	9.3	11.6	10.7	9.6	11.7	14.0	15.5	17.9	18.1	18.1	18.0	53.1%
OECD Pacific	663.2	778.0	812.9	710.0	891.8	1 032.1	987.0	944.9	900.0	904.5	840.7	-5.7%
Austria	27.2	29.2	33.0	26.9	27.7	29.8	31.0	38.1	36.7	35.7	34.5	24.5%
Belgium	63.3	60.4	65.0	46.7	48.7	55.4	56.9	57.9	54.9	51.9	57.0	17.1%
Czech Republic	19.9	27.9	30.6	27.9	23.0	20.5	20.2	24.9	24.7	25.1	24.5	6.5%
Denmark	49.0	44.2	38.5	30.2	22.0	24.4	23.4	21.6	21.9	21.8	21.1	-4.2%
Finland	31.4	33.6	33.9	26.9	28.2	26.2	24.3	26.6	26.6	26.4	25.0	-11.3%
France	277.3	293.5	292.8	214.5	220.1	227.3	234.0	237.0	234.5	227.9	223.8	1.7%
Germany	385.7	392.4	385.9	326.6	323.1	345.7	324.0	295.7	297.7	261.9	283.3	-12.3%
Greece	18.4	23.5	32.0	29.6	36.5	39.1	45.7	51.7	53.1	53.5	50.7	39.0%
Hungary	18.6	27.2	29.8	27.0	22.7	19.8	17.3	16.8	17.8	17.7	17.2	-24.4%
Iceland	1.4	1.6	1.7	1.4	1.6	1.7	1.7	1.8	1.9	1.9	1.9	14.3%
Ireland	12.9	14.0	16.2	11.4	12.1	15.7	22.9	24.9	26.2	25.0	24.3	99.8%
Italy	237.3	248.6	267.5	229.6	252.3	261.1	248.0	227.9	225.3	215.7	206.7	-18.1%
Luxembourg	4.1	3.8	3.0	2.9	4.4	4.7	5.9	8.0	7.8	7.5	7.5	68.3%
Netherlands	68.1	56.8	83.5	55.6	52.7	57.8	60.7	68.5	67.8	66.6	64.9	23.0%
Norway	19.8	19.8	22.0	19.8	20.0	20.4	21.0	22.8	23.9	24.1	23.1	15.6%
Poland	21.9	33.5	42.8	39.2	34.9	40.9	51.5	57.9	59.7	62.9	63.9	82.8%
Portugal	12.0	16.5	22.2	21.8	28.7	34.4	39.8	40.4	34.5	34.5	32.7	14.0%
Slovak Republic	12.6	15.2	18.1	14.3	14.4	7.1	6.8	9.1	9.1	9.5	9.7	-32.6%
Spain	82.4	117.3	136.9	101.6	120.9	143.1	166.8	191.4	189.5	190.2	181.8	50.3%
Sweden	77.1	72.5	67.6	47.3	40.1	45.4	41.5	36.6	35.0	33.7	33.2	-17.3%
Switzerland	36.9	34.8	36.0	35.8	34.2	33.5	33.3	34.2	33.8	31.9	33.1	-3.1%
Turkey	25.4	38.5	44.1	49.4	62.5	78.9	82.7	77.1	77.3	78.6	77.8	24.4%
United Kingdom	253.5	238.0	212.7	202.5	204.7	196.4	185.8	188.2	186.5	182.6	178.6	-12.7%
OECD Europe	1 756.2	1 842.6	1 915.6	1 588.9	1 635.6	1 729.4	1 745.3	1 759.2	1 746.2	1 686.6	1 676.0	2.5%
<i>European Union - 27</i>	..	..	..	..	1 643.0	1 672.4	1 671.3	1 694.5	1 680.8	1 622.8	1 612.8	-1.8%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

CO₂ emissions: Sectoral Approach - Oilmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	1 600.6	2 229.6	2 867.1	2 931.6	3 216.1	3 139.4	3 558.0	4 075.5	4 218.0	4 372.2	4 516.0	40.4%
Algeria	5.9	9.1	14.8	20.5	23.0	21.8	24.1	30.6	31.7	34.3	36.1	57.2%
Angola	1.6	1.9	2.5	2.7	3.0	2.9	4.0	5.6	7.2	7.7	9.3	211.0%
Benin	0.3	0.5	0.4	0.5	0.3	0.2	1.4	2.5	3.0	3.1	3.3	+
Botswana	..	..	..	0.5	1.0	1.2	1.7	2.0	2.1	2.3	2.6	165.0%
Cameroon	0.7	1.0	1.7	2.4	2.7	2.5	2.8	2.9	3.1	4.0	3.7	37.0%
Congo	0.6	0.7	0.8	0.8	0.7	0.5	0.6	0.9	1.1	1.1	1.4	105.7%
Dem. Rep. of Congo	1.5	1.8	2.3	2.4	2.1	1.1	0.8	1.3	1.4	1.5	1.7	-20.6%
Côte d'Ivoire	2.4	3.0	3.4	3.0	2.6	3.1	3.2	2.9	3.0	2.7	3.4	27.7%
Egypt	18.9	23.6	36.9	54.8	61.6	58.2	66.9	83.0	86.5	92.0	92.0	49.4%
Eritrea	..	..	..	..	..	0.8	0.6	0.6	0.5	0.5	0.5	..
Ethiopia	1.3	1.2	1.4	1.4	2.2	2.3	3.2	4.8	5.3	6.0	6.8	209.1%
Gabon	0.5	0.7	1.3	1.6	0.7	1.1	1.1	1.8	1.8	2.2	2.5	266.8%
Ghana	1.9	2.3	2.3	2.2	2.7	3.3	5.1	6.4	7.8	8.2	7.3	170.6%
Kenya	3.0	3.4	4.4	4.4	5.1	5.4	6.6	7.0	8.0	8.1	8.4	62.3%
Libyan Arab Jamahiriya	1.6	6.7	13.1	15.5	18.3	26.6	30.9	32.1	31.2	31.8	35.2	91.8%
Morocco	5.6	8.1	12.3	13.6	15.4	19.2	19.0	26.4	26.6	27.7	30.8	99.6%
Mozambique	1.4	1.1	1.6	1.2	0.9	1.0	1.3	1.5	1.6	1.9	1.8	88.9%
Namibia	..	..	..	..	..	1.8	1.9	2.8	2.9	3.0	3.1	..
Nigeria	5.0	10.1	23.4	25.2	22.1	21.2	28.0	34.9	29.9	28.5	33.0	49.3%
Senegal	1.2	1.6	2.0	2.1	2.0	2.4	3.6	4.2	4.0	4.4	4.5	126.8%
South Africa	27.5	34.1	35.1	39.6	46.4	49.6	50.4	59.8	59.8	63.2	62.3	34.2%
Sudan	3.3	3.3	3.7	4.2	5.5	4.6	5.5	10.0	11.2	12.0	12.1	119.1%
United Rep. of Tanzania	1.5	1.5	1.6	1.5	1.7	2.4	2.4	4.2	4.5	4.2	4.5	166.0%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	0.9	0.9	1.1	93.7%
Tunisia	3.4	4.0	6.7	7.1	9.0	9.4	11.3	12.1	11.7	11.9	11.6	29.1%
Zambia	1.5	2.5	1.9	1.7	1.7	1.7	1.4	1.7	1.9	1.4	1.6	-8.9%
Zimbabwe	1.6	2.1	1.8	2.0	2.6	3.6	3.0	2.1	2.0	1.9	1.8	-30.1%
Other Africa	7.1	8.5	12.6	11.1	13.8	16.4	18.3	22.2	22.5	24.2	25.6	86.1%
Africa	99.7	133.2	188.4	222.5	247.7	264.8	300.1	367.5	373.1	390.8	407.8	64.6%
Bahrain	1.2	1.2	1.7	1.8	2.1	2.4	2.5	3.6	4.3	4.2	4.1	97.3%
Islamic Rep. of Iran	37.7	65.7	81.8	128.4	141.1	170.0	187.9	222.0	244.8	246.3	258.7	83.3%
Iraq	10.5	12.4	29.8	42.1	49.1	65.7	75.8	82.6	86.0	87.0	93.8	91.2%
Israel	14.2	17.0	19.4	17.3	24.2	30.1	30.4	26.9	27.4	28.9	28.1	16.0%
Jordan	1.3	2.1	4.2	7.4	9.0	11.6	13.8	14.7	13.6	13.6	12.0	34.4%
Kuwait	13.3	13.0	17.6	28.2	12.5	23.0	32.3	52.3	44.1	44.8	46.5	271.7%
Lebanon	4.6	5.6	6.6	7.7	6.4	12.1	13.7	15.3	12.8	10.8	14.7	130.5%
Oman	0.3	0.7	1.5	3.3	5.0	7.7	8.4	12.0	12.9	14.2	15.8	216.1%
Qatar	0.3	0.7	1.5	2.0	2.3	2.9	3.4	7.8	9.0	11.3	14.0	506.5%
Saudi Arabia	10.6	18.3	80.1	95.0	114.5	142.9	176.0	210.9	225.5	240.1	262.2	129.0%
Syrian Arab Republic	6.8	10.3	15.0	23.3	27.8	33.8	35.3	37.0	39.6	42.9	43.8	57.6%
United Arab Emirates	0.4	1.6	9.4	15.6	18.5	21.4	21.9	30.1	31.4	32.9	34.5	86.6%
Yemen	1.2	1.7	3.4	4.8	6.4	9.3	13.2	18.8	19.7	20.5	21.9	241.0%
Middle East	102.5	150.4	272.2	376.8	418.8	533.0	614.6	733.9	771.1	797.6	850.2	103.0%
Albania	2.4	2.3	4.4	2.8	3.4	1.7	3.1	4.5	4.0	3.9	3.7	10.2%
Bosnia and Herzegovina *	..	..	..	..	5.4	1.6	3.3	3.2	3.4	3.6	3.7	-30.3%
Bulgaria	29.1	34.9	38.6	28.0	26.1	13.7	10.4	12.0	12.6	12.4	11.8	-54.9%
Croatia *	..	..	..	..	13.4	11.0	11.3	12.9	13.2	13.5	12.6	-6.5%
Cyprus	1.8	1.7	2.6	2.6	3.6	5.0	6.1	6.8	6.9	7.2	7.4	106.1%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.5	0.5	172.9%
FYR of Macedonia *	..	..	..	..	3.0	2.3	2.7	2.6	2.7	3.0	2.6	-14.5%
Malta	0.6	0.6	1.0	0.7	1.6	2.2	2.1	2.7	2.6	2.7	2.6	63.2%
Romania	31.5	40.0	51.6	41.1	50.0	32.0	26.5	27.8	27.0	27.6	26.9	-46.1%
Serbia *	..	..	..	..	14.1	4.8	4.1	10.3	10.7	12.0	10.3	-26.8%
Slovenia *	..	..	..	..	5.0	6.7	6.7	7.2	7.4	7.3	8.4	67.8%
Former Yugoslavia *	25.5	31.8	39.2	38.3	-	-	-	-	-	-	-	-
Non-OECD Europe	91.1	111.4	137.4	113.7	125.8	81.3	76.8	90.5	91.0	93.5	90.6	-28.0%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions: Sectoral Approach - Oilmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	11.2	0.7	0.8	1.0	0.9	0.9	1.0	-90.6%
Azerbaijan	..	..	..	..	31.3	18.8	18.6	14.0	10.5	10.4	9.5	-69.6%
Belarus	..	..	..	..	87.8	30.6	22.3	20.9	24.3	21.8	21.0	-76.1%
Estonia	..	..	..	..	9.3	3.5	2.7	3.1	3.1	3.2	3.0	-67.4%
Georgia	..	..	..	..	15.8	4.8	2.1	2.0	2.0	2.5	2.2	-86.0%
Kazakhstan	..	..	..	..	58.3	32.5	22.7	26.2	28.0	28.4	32.6	-44.2%
Kyrgyzstan	..	..	..	..	8.9	1.4	1.2	1.4	1.3	2.3	2.2	-74.8%
Latvia	..	..	..	..	10.3	5.5	3.8	4.1	4.4	4.7	4.4	-57.6%
Lithuania	..	..	..	..	19.7	9.0	6.5	7.5	7.3	7.5	8.1	-59.1%
Republic of Moldova	..	..	..	..	14.8	3.1	1.2	1.9	1.9	1.9	2.2	-85.2%
Russian Federation	..	..	..	..	625.4	351.2	332.4	309.9	321.1	325.8	336.7	-46.2%
Tajikistan	..	..	..	..	5.2	1.2	0.7	0.9	1.2	1.6	1.6	-68.2%
Turkmenistan	..	..	..	..	16.9	8.2	10.7	12.7	13.0	14.4	15.2	-9.6%
Ukraine	..	..	..	..	195.5	75.4	33.7	38.2	39.3	41.0	39.7	-79.7%
Uzbekistan	..	..	..	..	30.6	19.8	19.1	14.3	14.0	12.5	11.9	-61.2%
Former Soviet Union *	688.9	1 018.6	1 210.0	1 193.3	1 141.0	565.8	478.5	458.2	472.2	479.2	491.5	-56.9%
Argentina	67.3	65.1	70.9	54.4	53.1	62.1	66.0	67.4	72.7	73.2	77.8	46.5%
Bolivia	2.0	2.9	3.8	3.4	3.9	5.7	5.3	6.2	6.2	7.8	8.0	104.0%
Brazil	83.9	127.8	160.9	133.6	158.8	195.3	240.6	240.0	243.1	254.8	265.6	67.3%
Chile	14.5	12.4	15.1	13.0	20.4	29.7	32.7	38.8	39.8	50.6	52.8	158.5%
Colombia	18.0	18.5	20.6	22.2	26.8	37.4	34.6	32.9	33.7	33.5	35.2	31.5%
Costa Rica	1.3	1.7	2.2	2.0	2.6	4.4	4.5	5.3	5.7	6.2	6.3	140.4%
Cuba	18.0	25.1	28.0	29.9	26.8	21.4	23.3	24.1	22.8	23.1	27.9	4.2%
Dominican Republic	3.4	5.2	6.3	5.6	7.6	11.2	17.2	15.8	16.0	16.4	16.3	114.3%
Ecuador	3.5	5.9	10.5	11.7	12.7	15.6	17.9	22.7	24.0	24.3	24.9	96.9%
El Salvador	1.3	2.0	1.7	1.7	2.2	4.7	5.2	5.9	5.8	6.2	5.8	169.2%
Guatemala	2.3	3.0	4.2	3.3	3.3	6.0	8.3	9.6	9.6	10.1	9.0	172.3%
Haiti	0.4	0.4	0.6	0.6	0.9	0.9	1.4	2.0	2.0	2.3	2.3	155.3%
Honduras	1.1	1.3	1.7	1.7	2.1	3.5	4.1	6.5	6.0	7.7	7.3	242.2%
Jamaica	5.5	7.4	6.5	4.6	7.1	8.2	9.6	10.4	11.7	12.6	11.8	67.6%
Netherlands Antilles	14.4	10.2	8.7	4.6	2.7	2.8	4.1	4.2	4.1	4.5	4.4	62.0%
Nicaragua	1.5	1.8	1.8	1.8	1.8	2.5	3.5	4.1	4.0	4.4	4.1	125.9%
Panama	2.5	3.2	2.9	2.6	2.4	4.0	4.6	5.7	6.5	6.5	6.5	174.1%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.4	3.3	3.4	3.6	3.7	3.7	92.1%
Peru	14.4	17.0	18.9	16.2	17.6	21.8	23.0	21.5	21.1	20.7	24.4	38.6%
Trinidad and Tobago	2.7	3.0	2.8	2.5	2.1	2.2	2.7	3.1	3.9	3.9	4.1	96.1%
Uruguay	5.1	5.4	5.5	3.1	3.7	4.5	5.2	5.0	5.9	5.5	7.4	99.8%
Venezuela	30.7	37.5	59.1	56.0	57.0	59.9	64.6	83.8	88.7	89.7	92.1	61.7%
Other Latin America	7.7	10.7	10.1	9.2	12.4	13.3	14.4	15.6	16.0	16.1	16.4	32.4%
Latin America	302.2	368.3	444.1	385.0	429.8	520.7	596.0	633.9	652.9	683.8	714.4	66.2%
Bangladesh	2.2	3.3	4.6	4.6	5.2	8.4	9.4	12.8	12.0	12.6	13.4	158.9%
Brunei Darussalam	0.2	0.2	0.5	0.6	0.9	1.3	1.4	1.6	1.8	1.9	2.0	137.5%
Cambodia	..	..	..	..	..	1.4	2.4	3.7	4.1	4.4	4.6	..
Chinese Taipei	19.0	31.3	54.2	43.5	68.7	85.5	94.5	92.4	92.5	90.1	83.9	22.0%
India	55.5	62.3	84.1	117.7	164.0	221.7	299.1	309.0	333.8	352.2	373.6	127.8%
Indonesia	24.4	36.4	61.0	69.7	91.5	116.6	157.2	174.8	164.3	170.7	173.0	89.1%
DPR of Korea	2.6	4.2	8.0	7.4	7.9	3.9	3.1	2.8	2.2	2.6	2.7	-66.2%
Malaysia	12.6	16.0	23.9	27.9	38.0	50.6	58.7	66.6	65.0	68.3	67.8	78.5%
Mongolia	..	..	..	2.2	2.4	1.0	1.3	1.7	1.9	2.3	2.5	3.4%
Myanmar	3.8	3.0	3.8	3.4	2.0	3.9	5.2	5.9	5.3	5.6	4.5	125.3%
Nepal	0.2	0.2	0.3	0.5	0.7	1.5	2.1	2.1	2.1	2.2	2.3	212.9%
Pakistan	8.8	11.0	13.2	20.9	30.6	43.7	56.1	47.4	54.4	58.7	57.7	88.5%
Philippines	22.9	28.8	31.6	23.0	34.1	51.2	49.2	42.8	38.7	39.6	37.7	10.5%
Singapore	5.9	8.3	12.6	16.1	28.6	34.3	39.7	30.5	28.8	28.0	27.7	-3.3%
Sri Lanka	2.8	2.7	3.7	3.6	3.7	5.5	10.6	13.2	11.7	12.8	12.0	222.7%
Thailand	16.8	21.3	32.3	28.3	52.6	93.7	90.8	113.3	112.2	111.8	107.5	104.5%
Vietnam	10.6	6.7	5.6	5.8	8.3	14.2	24.2	37.3	37.5	41.3	40.9	392.2%
Other Asia	3.8	5.4	8.6	8.0	8.8	8.3	9.4	13.3	13.2	12.1	13.0	46.4%
Asia	192.0	241.2	348.2	383.0	548.1	746.7	914.5	971.2	981.5	1 017.1	1 026.8	87.3%
People's Rep. of China	115.2	195.9	252.4	247.6	296.1	415.5	561.1	811.8	868.5	902.2	926.5	212.9%
Hong Kong, China	9.0	10.7	14.3	9.6	8.7	11.6	16.4	8.4	7.7	8.1	8.3	-4.5%
China	124.2	206.6	266.8	257.2	304.9	427.1	577.4	820.2	876.2	910.2	934.8	206.7%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions: Sectoral Approach - Gasmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	2 058.3	2 281.2	2 767.3	3 161.3	3 808.1	4 105.7	4 696.8	5 334.8	5 465.1	5 715.0	5 861.5	53.9%
<i>Annex I Parties</i>	..	..	..	..	3 068.2	3 177.0	3 470.7	3 646.6	3 652.8	3 778.9	3 799.6	23.8%
<i>Annex II Parties</i>	1 438.5	1 503.1	1 663.5	1 616.2	1 793.2	2 121.9	2 425.7	2 490.2	2 482.7	2 591.7	2 612.8	45.7%
<i>North America</i>	1 257.4	1 143.4	1 179.4	1 058.1	1 135.1	1 309.4	1 423.0	1 359.9	1 341.8	1 436.3	1 432.7	26.2%
<i>Europe</i>	168.1	331.0	414.3	446.1	505.0	631.3	783.8	894.0	885.7	879.4	907.1	79.6%
<i>Pacific</i>	12.9	28.7	69.8	112.0	153.1	181.2	218.8	236.4	255.2	275.9	273.0	78.3%
<i>Annex I EIT</i>	..	..	..	..	1 268.4	1 042.0	1 016.2	1 103.5	1 109.5	1 116.3	1 116.6	-12.0%
<i>Non-Annex I Parties</i>	..	..	..	..	739.9	928.7	1 226.1	1 688.3	1 812.3	1 936.1	2 061.9	178.7%
<i>Annex I Kyoto Parties</i>	..	..	..	..	2 023.5	1 978.2	2 154.7	2 365.8	2 378.6	2 415.8	2 431.8	20.2%
Intl. marine bunkers	..	..	..	..	..	-	-	-	-	-	-	..
Intl. aviation bunkers	..	..	..	..	..	-	-	-	-	-	-	..
Non-OECD Total	576.7	720.3	1 014.6	1 438.3	1 888.5	1 830.6	2 063.4	2 555.4	2 671.8	2 792.9	2 913.0	54.2%
OECD Total	1 481.6	1 560.9	1 752.7	1 723.1	1 919.6	2 275.1	2 633.4	2 779.4	2 793.3	2 922.1	2 948.6	53.6%
Canada	67.9	87.3	99.7	113.9	123.8	149.1	168.1	170.2	167.2	183.4	175.2	41.5%
Mexico	20.2	25.6	43.2	53.6	52.1	55.9	66.6	88.3	100.2	108.0	112.5	115.9%
United States	1 189.5	1 056.1	1 079.7	944.2	1 011.3	1 160.2	1 254.9	1 189.7	1 174.7	1 253.0	1 257.5	24.3%
OECD N. America	1 277.6	1 169.0	1 222.6	1 111.7	1 187.2	1 365.2	1 489.7	1 448.2	1 442.0	1 544.3	1 545.1	30.1%
Australia	4.1	8.9	16.7	24.4	32.8	37.7	43.9	55.7	56.1	58.3	61.4	87.2%
Japan	8.5	19.2	51.2	81.5	114.6	137.1	164.8	173.7	191.9	209.4	204.1	78.1%
Korea	-	-	-	-	6.4	19.4	39.9	63.8	68.2	73.3	74.9	+
New Zealand	0.2	0.6	1.8	6.1	5.7	6.4	10.1	7.0	7.2	8.2	7.5	31.6%
OECD Pacific	12.9	28.7	69.8	112.0	159.4	200.6	258.7	300.2	323.4	349.2	348.0	118.2%
Austria	5.6	7.5	9.0	10.1	11.8	14.7	15.0	18.9	17.2	16.1	17.2	45.9%
Belgium	11.3	18.2	20.5	16.9	18.9	24.5	30.7	33.3	34.3	34.5	34.3	81.3%
Czech Republic	1.9	3.1	5.6	9.1	11.5	14.5	17.0	17.8	17.4	16.3	16.3	42.4%
Denmark	-	0.0	0.0	1.5	4.2	7.3	10.3	10.4	10.6	9.5	9.6	130.6%
Finland	-	1.5	1.7	1.9	5.1	6.6	7.9	8.4	9.0	8.5	8.8	73.4%
France	19.2	33.0	47.4	54.5	56.1	65.8	81.1	92.5	90.1	87.1	90.4	61.3%
Germany	38.8	86.4	114.9	105.3	118.1	147.0	158.4	179.8	182.2	176.7	180.8	53.0%
Greece	-	-	-	0.1	0.2	0.1	3.9	5.4	6.3	7.7	8.1	+
Hungary	6.8	10.7	17.6	19.2	19.8	20.3	21.6	27.0	25.8	24.2	23.9	20.7%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	1.7	4.5	4.0	5.0	7.7	8.2	9.3	10.0	10.4	162.8%
Italy	23.9	40.8	49.3	59.8	89.2	102.8	134.0	163.2	159.8	160.6	161.1	80.5%
Luxembourg	0.0	0.8	1.0	0.7	1.0	1.3	1.6	2.8	2.9	2.8	2.6	154.4%
Netherlands	47.0	72.5	69.4	75.3	70.2	78.6	79.7	80.7	78.5	76.2	79.7	13.5%
Norway	-	0.4	2.0	2.8	4.6	8.1	8.0	10.0	10.3	10.5	11.1	140.2%
Poland	11.4	13.5	17.6	18.2	18.5	18.3	20.6	26.2	26.4	26.5	26.8	45.0%
Portugal	-	-	-	-	-	-	4.6	8.6	8.3	8.8	9.5	x
Slovak Republic	2.9	4.9	5.1	6.7	11.7	11.7	13.1	13.2	12.0	11.3	11.2	-4.1%
Spain	0.7	1.8	3.1	4.5	10.5	17.4	34.7	67.2	72.4	73.8	81.0	668.5%
Sweden	-	-	-	0.2	1.2	1.6	1.6	1.7	1.7	1.9	1.8	44.9%
Switzerland	0.0	1.0	1.9	2.9	3.8	5.1	5.6	6.5	6.3	6.1	6.5	73.1%
Turkey	-	-	-	0.1	6.5	13.0	28.9	52.8	60.5	70.9	70.2	974.4%
United Kingdom	21.6	67.2	92.3	105.2	106.0	145.4	199.0	196.6	186.4	188.5	194.2	83.1%
OECD Europe	191.1	363.2	460.3	499.4	573.0	709.2	885.0	1 031.0	1 027.8	1 028.5	1 055.5	84.2%
<i>European Union - 27</i>	..	..	..	..	657.9	745.6	889.5	1 010.2	1 000.1	988.3	1 013.8	54.1%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

CO₂ emissions: Sectoral Approach - Gasmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	576.7	720.3	1 014.6	1 438.3	1 888.5	1 830.6	2 063.4	2 555.4	2 671.8	2 792.9	2 913.0	54.2%
Algeria	2.4	4.6	13.4	21.7	27.4	32.4	37.6	46.9	48.9	50.2	50.8	85.2%
Angola	0.1	0.1	0.2	0.2	1.0	1.1	1.1	1.4	1.5	1.6	1.3	25.9%
Benin	-	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	..	..	-	-	-	-	-	-	-	-	-
Cameroon	-	-	-	-	-	-	-	-	-	0.6	0.6	x
Congo	0.0	0.0	-	0.0	-	-	-	0.0	0.0	0.0	0.0	x
Dem. Rep. of Congo	-	-	-	-	-	-	-	-	0.0	0.0	0.0	x
Côte d'Ivoire	-	-	-	-	-	0.1	3.0	2.9	2.9	2.9	3.1	x
Egypt	0.2	0.1	3.4	7.9	14.9	22.9	40.1	65.7	70.5	73.6	79.1	429.5%
Eritrea	..	..	..	..	..	-	-	-	-	-	-	..
Ethiopia	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	-	-	0.0	0.1	0.2	0.3	0.2	0.3	0.3	0.3	0.4	110.5%
Ghana	-	-	-	-	-	-	-	-	-	-	-	-
Kenya	-	-	-	-	-	-	-	-	-	-	-	-
Libyan Arab Jamahiriya	2.1	2.5	5.5	7.0	9.0	8.5	8.8	10.4	11.3	11.4	9.7	7.2%
Morocco	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.9	1.1	1.3	1.1	994.9%
Mozambique	-	-	-	-	-	0.0	0.0	0.0	0.1	0.1	0.1	x
Namibia	..	..	..	..	..	-	-	-	-	-	-	..
Nigeria	0.4	1.0	2.9	6.9	6.9	9.2	12.1	16.5	18.9	19.2	19.3	181.1%
Senegal	-	-	-	-	0.0	0.1	0.0	0.0	0.0	0.0	0.0	65.6%
South Africa	-	-	-	-	-	-	-	-	-	-	-	-
Sudan	-	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	-	-	-	-	-	-	-	0.8	1.0	1.0	1.1	x
Togo	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	0.0	0.5	0.8	2.2	2.8	4.6	6.4	7.5	7.9	8.4	9.2	227.9%
Zambia	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	-	-	-	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	-	-	-	0.0	1.5	1.7	1.8	1.9	x
Africa	5.2	9.0	26.3	46.2	62.4	79.2	109.4	154.8	166.1	172.6	177.8	185.0%
Bahrain	1.8	4.1	5.7	8.6	9.6	9.3	11.6	14.6	15.9	17.0	18.2	89.2%
Islamic Rep. of Iran	5.5	8.1	8.5	16.8	37.0	80.0	118.9	184.8	202.6	231.8	242.7	556.0%
Iraq	1.8	3.1	2.4	1.6	3.8	6.0	6.0	2.8	2.8	2.8	3.6	-5.1%
Israel	0.2	0.1	0.2	0.1	0.0	0.0	0.0	3.1	4.4	4.5	5.4	+
Jordan	-	-	-	-	0.2	0.5	0.5	3.2	4.7	5.6	6.4	+
Kuwait	9.9	9.9	13.2	9.7	11.8	18.0	17.9	22.0	22.6	22.0	23.0	94.1%
Lebanon	-	-	-	-	-	-	-	-	-	-	-	-
Oman	-	-	0.7	2.1	4.9	6.7	11.4	16.0	17.6	18.4	19.1	288.2%
Qatar	1.9	4.2	6.3	10.5	12.2	16.2	20.9	29.7	34.3	38.1	39.9	228.3%
Saudi Arabia	2.7	5.4	21.2	34.1	46.8	61.4	74.9	109.7	113.3	116.7	126.9	171.2%
Syrian Arab Republic	-	-	0.1	0.3	3.2	4.8	10.4	10.8	11.2	10.8	10.7	233.1%
United Arab Emirates	2.0	3.3	9.6	19.8	33.1	48.5	64.2	79.9	84.3	97.7	112.5	239.5%
Yemen	-	-	-	-	-	-	-	-	-	-	-	-
Middle East	25.8	38.1	67.9	103.6	162.7	251.6	336.7	476.7	513.6	565.5	608.2	273.8%
Albania	0.2	0.6	0.8	0.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	-96.5%
Bosnia and Herzegovina *	..	..	..	..	0.9	0.3	0.5	0.7	0.7	0.8	0.8	-10.6%
Bulgaria	0.6	2.3	7.4	10.8	12.0	10.0	6.2	5.9	6.2	6.3	6.1	-48.9%
Croatia *	..	..	..	..	4.7	4.1	4.7	5.1	5.1	5.8	5.6	18.0%
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-
Gibraltar	-	-	-	-	-	-	-	-	-	-	-	-
FYR of Macedonia *	..	..	..	..	-	-	0.1	0.1	0.2	0.2	0.2	x
Malta	-	-	-	-	-	-	-	-	-	-	-	-
Romania	52.1	62.6	75.7	74.6	67.4	43.1	30.6	30.2	30.9	28.0	27.9	-58.6%
Serbia *	..	..	..	..	6.0	3.0	3.4	4.3	4.4	4.5	4.5	-25.5%
Slovenia *	..	..	..	..	1.8	1.7	1.8	2.1	2.0	2.0	2.0	10.4%
Former Yugoslavia *	1.9	2.9	5.8	11.0	-	-	-	-	-	-	-	-
Non-OECD Europe	54.8	68.4	89.6	97.1	93.3	62.3	47.4	48.6	49.5	47.7	47.1	-49.5%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions: Sectoral Approach - Gasmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	8.3	2.7	2.6	3.1	3.2	3.8	4.2	-49.5%
Azerbaijan	..	..	..	..	31.5	12.7	10.8	18.0	19.7	16.9	19.7	-37.4%
Belarus	..	..	..	..	26.9	25.5	32.2	38.3	38.9	39.3	40.2	49.5%
Estonia	..	..	..	..	2.7	1.3	1.5	1.8	1.8	1.8	1.7	-36.9%
Georgia	..	..	..	..	10.6	2.2	2.2	2.2	2.7	2.9	2.3	-78.6%
Kazakhstan	..	..	..	..	24.8	23.5	20.6	39.3	45.7	51.1	58.6	136.3%
Kyrgyzstan	..	..	..	..	3.6	1.7	1.3	1.4	1.5	1.6	1.5	-58.9%
Latvia	..	..	..	..	5.6	2.3	2.5	3.2	3.3	3.2	3.1	-44.3%
Lithuania	..	..	..	..	10.3	4.3	4.3	5.3	5.2	5.9	5.3	-48.5%
Republic of Moldova	..	..	..	..	7.6	5.5	4.8	5.6	5.2	5.3	4.5	-40.9%
Russian Federation	..	..	..	..	866.3	728.8	718.1	783.4	804.5	820.7	821.5	-5.2%
Tajikistan	..	..	..	..	3.2	1.2	1.5	1.3	1.3	1.3	1.0	-68.0%
Turkmenistan	..	..	..	..	28.6	26.2	25.5	28.7	28.8	31.3	32.1	12.0%
Ukraine	..	..	..	..	209.4	156.1	141.9	144.0	130.0	125.1	125.1	-40.2%
Uzbekistan	..	..	..	..	75.5	77.4	93.4	89.4	93.4	94.6	97.9	29.7%
Former Soviet Union *	431.8	520.4	704.2	1 021.2	1 315.0	1 071.3	1 063.1	1 164.9	1 185.1	1 204.7	1 218.7	-7.3%
Argentina	12.3	17.1	21.7	30.5	43.4	51.2	68.5	78.4	81.5	87.1	88.3	103.6%
Bolivia	0.1	0.3	0.6	0.8	1.5	2.5	2.3	3.6	3.8	4.5	4.8	221.3%
Brazil	0.2	0.7	1.7	4.3	6.4	8.5	17.3	38.0	39.9	40.7	49.0	667.4%
Chile	1.3	1.1	1.4	1.6	2.1	2.1	10.3	14.0	12.5	6.6	3.7	77.1%
Colombia	2.6	3.2	5.7	7.3	7.5	8.3	12.8	14.3	14.3	14.2	15.2	102.1%
Costa Rica	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	0.0	0.0	0.0	0.0	0.1	0.0	1.1	1.4	2.1	2.3	2.2	+
Dominican Republic	-	-	-	-	-	-	-	0.5	0.6	0.8	1.0	x
Ecuador	0.1	0.3	0.1	0.4	0.5	0.6	0.7	0.9	1.5	1.5	1.0	81.0%
El Salvador	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	-	-	-	-	-	-	-	-	-	-	-	-
Panama	-	-	-	-	-	-	-	-	-	-	-	-
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.6	0.8	1.0	1.3	1.0	0.6	1.1	3.5	3.9	5.5	6.8	553.9%
Trinidad and Tobago	3.4	2.8	5.1	7.1	9.3	10.0	15.3	27.6	34.7	32.9	33.8	265.1%
Uruguay	-	-	-	-	-	-	0.1	0.2	0.2	0.2	0.2	x
Venezuela	20.8	24.3	32.6	38.5	46.3	58.4	61.7	52.6	54.7	53.3	53.5	15.4%
Other Latin America	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.4	1.4	1.5	1.5	+
Latin America	41.6	50.8	70.0	91.9	118.1	142.3	191.7	236.5	251.1	251.0	260.9	120.9%
Bangladesh	0.6	0.9	2.1	4.0	7.3	10.9	14.6	22.2	25.4	27.7	30.6	319.5%
Brunei Darussalam	0.2	1.2	2.1	2.3	2.5	3.4	3.2	3.5	5.7	5.3	5.5	117.9%
Cambodia	..	..	..	..	..	..	..	..	..	..	..	..
Chinese Taipei	1.9	2.7	3.3	1.9	3.3	7.8	12.9	20.7	21.1	23.1	25.1	666.1%
India	1.3	1.9	2.5	8.0	20.6	35.3	47.1	68.5	71.5	75.8	76.3	270.1%
Indonesia	0.3	1.0	7.3	13.5	37.3	58.2	62.0	59.4	60.0	61.2	67.3	80.2%
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.0	0.1	0.1	4.4	6.9	23.1	45.5	59.4	64.8	67.3	75.1	986.3%
Mongolia	..	..	..	..	..	..	..	..	..	..	..	..
Myanmar	0.1	0.3	0.6	1.8	1.7	2.8	2.7	7.1	6.3	6.3	6.6	289.0%
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	5.3	7.7	10.3	13.4	20.9	28.0	34.5	56.1	56.2	58.7	58.4	179.5%
Philippines	-	-	-	-	-	0.0	0.0	6.7	6.0	7.0	7.2	x
Singapore	-	-	-	-	-	3.5	2.8	13.9	15.0	15.8	16.3	x
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-
Thailand	-	-	-	5.7	10.0	18.2	37.3	53.9	55.1	57.8	61.6	518.4%
Vietnam	-	-	-	0.1	0.0	0.4	2.6	11.5	12.1	12.8	14.6	+
Other Asia	0.5	0.5	0.2	1.2	0.6	0.5	0.5	0.5	0.6	0.5	0.5	-4.4%
Asia	10.2	16.3	28.7	56.4	111.1	192.1	265.7	383.2	399.9	419.3	445.3	300.7%
People's Rep. of China	7.3	17.3	27.8	21.9	25.8	31.7	43.7	85.7	101.2	127.5	149.4	478.3%
Hong Kong, China	-	-	-	-	-	0.1	5.7	5.1	5.4	4.7	5.4	x
China	7.3	17.3	27.8	21.9	25.8	31.8	49.5	90.8	106.5	132.2	154.9	499.4%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions: Reference Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	14 617.9	16 160.3	18 666.0	19 310.9	21 523.4	22 107.7	23 744.1	27 614.7	28 479.8	29 327.7	29 938.6	39.1%
<i>Annex I Parties</i>	..	..	..	..	14 163.4	13 308.9	13 862.6	14 328.2	14 308.9	14 379.1	14 156.0	-0.1%
<i>Annex II Parties</i>	8 638.1	8 951.2	9 721.8	9 303.2	9 842.9	10 214.2	11 019.4	11 393.4	11 285.6	11 355.0	11 101.9	12.8%
<i>North America</i>	4 612.3	4 775.0	5 191.6	5 009.7	5 283.9	5 571.2	6 195.0	6 389.3	6 297.3	6 396.3	6 214.5	17.6%
<i>Europe</i>	3 098.9	3 118.9	3 387.8	3 152.0	3 200.9	3 171.8	3 255.0	3 374.0	3 358.7	3 303.8	3 256.7	1.7%
<i>Pacific</i>	927.0	1 057.4	1 142.4	1 141.5	1 358.0	1 471.2	1 569.4	1 630.2	1 629.6	1 654.8	1 630.7	20.1%
<i>Annex I EIT</i>	..	..	..	..	4 182.3	2 937.4	2 639.7	2 715.1	2 780.6	2 758.3	2 791.2	-33.3%
<i>Non-Annex I Parties</i>	..	..	..	..	6 747.0	8 102.3	9 058.5	12 342.7	13 178.1	13 912.9	14 749.5	118.6%
<i>Annex I Kyoto Parties</i>	..	..	..	..	9 037.4	7 970.1	7 922.9	8 200.7	8 233.9	8 196.3	8 142.8	-9.9%
Intl. marine bunkers	344.5	328.6	343.9	291.7	354.8	408.7	468.6	522.3	556.6	589.1	578.2	63.0%
Intl. aviation bunkers	168.9	173.4	201.3	224.0	258.2	287.8	354.4	421.6	436.2	446.6	454.8	76.1%
Non-OECD Total	4 681.8	5 772.9	7 195.7	8 211.0	9 754.7	9 814.8	10 412.5	13 658.7	14 536.4	15 217.7	16 073.7	64.8%
OECD Total	9 422.7	9 885.4	10 925.1	10 584.2	11 155.7	11 596.4	12 508.5	13 012.2	12 950.6	13 074.3	12 831.8	15.0%
Canada	337.2	392.3	428.6	399.9	423.6	452.7	518.8	545.4	533.0	545.5	530.4	25.2%
Mexico	100.8	145.1	242.2	265.7	289.8	301.2	342.5	413.3	415.1	426.6	434.4	49.9%
United States	4 275.1	4 382.7	4 763.0	4 609.9	4 860.4	5 118.5	5 676.2	5 843.9	5 764.3	5 850.8	5 684.1	16.9%
OECD N. America	4 713.0	4 920.1	5 433.8	5 275.4	5 573.7	5 872.4	6 537.5	6 802.6	6 712.4	6 823.0	6 648.9	19.3%
Australia	156.9	182.7	212.1	220.0	260.9	278.5	330.4	368.5	377.1	381.3	400.9	53.7%
Japan	755.6	857.1	913.0	899.8	1 074.1	1 165.6	1 208.4	1 229.5	1 219.6	1 241.6	1 197.8	11.5%
Korea	54.8	77.9	125.7	157.7	238.6	355.3	430.9	464.3	471.8	498.9	512.8	114.9%
New Zealand	14.4	17.7	17.3	21.7	23.0	27.1	30.6	32.1	32.8	31.9	32.0	39.0%
OECD Pacific	981.8	1 135.3	1 268.1	1 299.1	1 596.6	1 826.5	2 000.3	2 094.5	2 101.4	2 153.7	2 143.5	34.3%
Austria	51.2	52.3	58.3	55.9	57.1	60.1	62.4	75.6	72.9	70.0	69.1	21.0%
Belgium	120.0	119.5	129.8	103.9	109.4	116.3	121.4	114.8	113.3	108.2	111.3	1.7%
Czech Republic	168.5	158.9	170.1	174.5	160.7	126.8	125.2	124.8	126.9	128.0	120.5	-25.0%
Denmark	56.2	52.6	61.0	61.0	50.7	58.1	51.0	48.1	55.8	51.3	48.2	-4.9%
Finland	39.9	45.5	57.4	50.5	52.1	54.0	54.2	56.3	67.5	65.3	58.2	11.7%
France	434.6	431.8	473.0	374.3	367.3	348.7	360.6	389.9	379.6	373.4	374.2	1.9%
Germany	993.1	976.5	1 076.4	1 022.5	971.7	877.5	843.9	820.1	821.3	804.1	802.6	-17.4%
Greece	25.3	35.4	45.4	55.9	69.2	72.6	85.3	93.1	91.1	91.3	91.2	31.8%
Hungary	58.2	67.4	80.7	78.8	67.7	59.3	55.0	57.3	56.5	54.9	53.5	-21.0%
Iceland	1.4	1.6	1.8	1.6	2.0	1.9	2.1	2.2	2.2	2.3	2.2	12.3%
Ireland	22.5	21.8	26.3	27.2	31.4	32.7	40.5	41.6	41.6	42.9	42.2	34.3%
Italy	280.3	311.2	349.0	339.6	384.0	413.0	433.6	458.8	453.0	444.9	432.7	12.7%
Luxembourg	15.2	13.1	12.0	10.0	10.5	8.3	8.0	11.2	11.2	10.7	10.4	-0.8%
Netherlands	130.4	138.0	155.7	147.2	158.5	172.3	174.5	182.6	179.7	183.2	182.7	15.3%
Norway	23.4	24.0	28.6	27.1	28.5	31.8	37.1	37.5	39.5	38.8	44.3	55.5%
Poland	310.3	367.5	450.4	445.3	363.3	340.0	294.6	300.4	313.7	308.9	308.8	-15.0%
Portugal	14.9	18.9	24.6	25.5	38.5	49.4	59.9	63.3	57.0	55.6	53.1	37.8%
Slovak Republic	48.3	55.0	60.9	59.4	54.5	42.3	37.4	38.9	38.3	36.3	36.9	-32.3%
Spain	121.5	162.1	192.0	187.6	212.1	239.2	286.7	341.9	335.9	345.8	321.2	51.5%
Sweden	84.5	80.9	72.0	61.8	51.8	54.7	49.5	51.2	48.9	46.7	48.3	-6.7%
Switzerland	39.7	37.4	39.8	39.5	42.1	39.6	40.1	43.4	44.2	40.4	42.8	1.7%
Turkey	43.7	62.4	73.3	99.7	138.2	157.3	203.5	219.7	242.6	265.8	262.9	90.3%
United Kingdom	644.9	596.3	584.7	560.8	564.0	541.7	544.2	542.3	543.9	528.7	522.1	-7.4%
OECD Europe	3 727.9	3 830.0	4 223.1	4 009.6	3 985.3	3 897.5	3 970.8	4 115.0	4 136.7	4 097.7	4 039.4	1.4%
<i>European Union - 27</i>	..	..	..	..	4 131.8	3 915.1	3 875.1	4 015.2	4 018.9	3 966.2	3 894.8	-5.7%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

CO₂ emissions: Reference Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	4 681.8	5 772.9	7 195.7	8 211.0	9 754.7	9 814.8	10 412.5	13 658.7	14 536.4	15 217.7	16 073.7	64.8%
Algeria	9.8	15.0	29.0	46.4	55.3	60.0	66.8	79.9	86.4	91.9	92.4	67.2%
Angola	1.7	2.1	2.7	2.9	4.1	3.9	5.1	6.9	8.6	10.5	10.5	153.7%
Benin	0.3	0.5	0.4	0.5	0.2	0.2	1.5	2.5	3.0	3.1	3.3	+
Botswana	..	..	..	1.6	2.9	3.3	4.2	4.3	4.3	4.5	4.7	59.8%
Cameroon	0.7	1.0	1.7	2.5	2.7	2.6	3.0	3.2	3.4	5.7	4.9	77.9%
Congo	0.6	0.7	0.8	1.0	0.8	0.6	0.6	1.4	1.3	1.4	1.7	117.4%
Dem. Rep. of Congo	2.7	2.9	2.9	3.4	4.1	3.0	1.7	2.3	2.5	2.7	2.9	-30.0%
Côte d'Ivoire	2.4	3.1	3.4	2.5	2.9	3.7	6.6	6.5	5.5	6.6	6.7	134.8%
Egypt	20.6	26.3	39.6	67.1	82.0	87.6	109.8	147.7	154.8	163.1	172.2	110.1%
Eritrea	..	..	..	..	..	0.8	0.6	0.8	0.6	0.6	0.4	..
Ethiopia	1.4	1.2	1.4	1.4	2.4	2.6	3.2	4.9	5.4	5.9	6.4	168.0%
Gabon	1.7	2.1	2.2	1.9	1.1	1.2	1.3	1.9	1.9	2.1	2.6	141.3%
Ghana	1.9	2.5	2.2	2.5	2.8	3.6	5.4	6.2	8.6	8.9	7.8	174.2%
Kenya	3.2	3.4	4.3	4.6	5.7	5.9	6.7	7.2	8.3	8.5	8.8	53.8%
Libyan Arab Jamahiriya	3.8	9.9	17.2	24.7	28.0	40.6	42.6	45.1	45.1	45.7	47.6	70.2%
Morocco	6.8	9.9	13.9	16.4	20.2	25.2	30.0	39.5	39.7	42.2	43.8	117.4%
Mozambique	3.0	2.4	2.4	1.5	1.0	1.1	1.5	1.5	1.6	2.1	2.0	99.7%
Namibia	..	..	..	..	..	1.8	1.9	2.8	3.0	3.1	3.9	..
Nigeria	5.9	11.8	26.9	33.2	38.2	41.6	43.3	55.1	47.6	42.4	53.7	40.5%
Senegal	1.2	1.6	2.0	1.9	2.2	2.5	3.7	4.7	4.7	5.0	5.0	130.1%
South Africa	148.8	175.6	214.5	288.4	291.1	337.8	351.7	402.9	415.0	433.8	430.6	47.9%
Sudan	4.1	3.9	3.9	4.3	5.6	4.7	7.1	12.5	12.0	13.0	14.6	161.8%
United Rep. of Tanzania	2.1	1.9	2.2	2.0	2.0	3.0	2.3	5.1	5.6	5.4	5.8	184.2%
Togo	0.3	0.3	0.4	0.3	0.6	0.6	1.0	1.0	0.9	0.9	1.1	90.8%
Tunisia	3.7	5.0	8.0	10.1	12.3	14.0	17.4	19.2	19.7	20.4	21.0	70.0%
Zambia	3.4	3.3	3.4	2.9	2.7	2.1	1.7	2.1	2.1	1.5	1.7	-39.4%
Zimbabwe	7.9	7.7	8.0	9.6	15.4	15.3	12.8	10.6	10.1	9.5	9.0	-42.0%
Other Africa	7.3	8.7	11.4	12.2	14.9	17.6	20.0	25.7	26.5	28.9	30.6	105.0%
Africa	245.5	303.0	405.0	545.7	601.4	687.0	753.2	903.5	927.9	969.3	995.6	65.5%
Bahrain	3.1	4.8	6.4	9.8	10.2	11.6	13.8	17.7	19.7	20.8	21.9	114.9%
Islamic Rep. of Iran	45.1	73.9	106.8	150.7	183.3	243.7	306.9	416.6	452.7	489.0	515.1	180.9%
Iraq	12.4	15.0	29.9	45.2	50.8	74.6	72.1	97.5	101.2	96.1	99.6	96.3%
Israel	17.2	21.0	23.1	23.5	34.9	48.1	55.5	61.7	64.4	66.7	66.7	91.2%
Jordan	1.4	2.1	4.3	7.5	9.4	12.4	14.3	18.4	18.5	19.4	18.7	99.8%
Kuwait	13.6	13.5	39.7	38.5	19.7	41.9	54.5	76.5	67.2	68.7	72.0	266.0%
Lebanon	4.6	5.5	6.5	7.6	6.4	12.6	14.2	15.8	13.3	11.4	15.2	137.8%
Oman	0.7	0.7	3.1	5.5	9.9	15.9	20.1	26.3	34.6	37.8	40.7	312.1%
Qatar	2.2	5.0	7.7	12.5	14.1	18.0	23.9	38.7	43.3	53.1	53.8	281.2%
Saudi Arabia	18.4	24.1	87.7	125.4	141.9	215.1	258.0	323.6	339.5	356.6	388.8	174.1%
Syrian Arab Republic	8.0	10.3	14.2	24.4	32.4	39.6	46.9	47.5	50.5	54.1	54.8	68.8%
United Arab Emirates	2.4	4.9	18.8	34.4	49.9	67.6	82.1	105.4	111.1	126.2	142.3	185.2%
Yemen	1.9	1.8	3.4	4.8	7.1	9.9	13.9	19.3	20.1	21.2	22.0	207.4%
Middle East	131.0	182.7	351.7	490.0	569.9	811.2	976.3	1 264.9	1 336.1	1 421.0	1 511.6	165.2%
Albania	4.1	4.7	7.9	7.4	6.5	1.9	3.1	4.5	4.0	4.1	3.8	-41.1%
Bosnia and Herzegovina *	..	..	..	..	23.9	3.5	13.7	15.8	17.4	18.2	19.8	-17.4%
Bulgaria	63.8	73.0	84.2	85.1	76.2	57.5	43.4	47.8	48.8	52.1	49.9	-34.5%
Croatia *	..	..	..	..	21.6	16.0	17.9	20.9	21.0	22.2	21.2	-1.8%
Cyprus	1.8	1.7	2.6	2.8	4.1	5.2	6.3	6.6	6.9	7.3	7.7	86.1%
Gibraltar	0.1	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.5	0.5	172.9%
FYR of Macedonia *	..	..	..	..	8.6	8.2	8.6	9.1	8.9	9.5	9.6	11.2%
Malta	0.6	0.6	1.0	1.1	2.3	2.2	2.1	2.7	2.6	2.7	2.6	12.0%
Romania	111.6	138.9	177.8	178.9	171.8	127.2	87.7	91.9	98.2	95.6	90.4	-47.3%
Serbia *	..	..	..	..	61.6	44.4	41.9	46.9	49.6	49.7	49.7	-19.4%
Slovenia *	..	..	..	..	13.5	14.2	13.9	15.7	16.0	15.9	16.8	24.6%
Former Yugoslavia *	65.5	77.1	101.5	127.2	-	-	-	-	-	-	-	-
Non-OECD Europe	247.4	296.1	375.1	402.7	390.2	280.6	239.0	262.4	273.8	277.7	271.9	-30.3%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions: Reference Approachmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	20.5	3.4	3.4	4.1	4.1	4.8	5.3	-74.4%
Azerbaijan	..	..	..	..	67.0	33.9	30.5	33.2	33.4	28.9	31.3	-53.4%
Belarus	..	..	..	..	127.4	63.0	60.0	63.9	68.1	66.2	66.2	-48.0%
Estonia	..	..	..	..	37.0	18.3	16.3	17.8	17.1	20.0	18.5	-50.1%
Georgia	..	..	..	..	29.2	7.2	4.4	4.4	5.1	5.8	4.9	-83.2%
Kazakhstan	..	..	..	..	237.0	169.3	130.7	177.7	200.2	205.8	216.8	-8.5%
Kyrgyzstan	..	..	..	..	22.5	4.4	4.5	5.0	4.8	6.1	5.9	-73.9%
Latvia	..	..	..	..	18.7	9.1	6.4	6.9	7.6	7.9	7.6	-59.4%
Lithuania	..	..	..	..	33.7	14.5	10.9	13.6	13.7	14.4	14.3	-57.6%
Republic of Moldova	..	..	..	..	30.2	11.4	6.5	8.0	7.5	7.5	7.1	-76.4%
Russian Federation	..	..	..	..	2 337.2	1 620.4	1 545.2	1 579.8	1 629.1	1 611.3	1 662.8	-28.9%
Tajikistan	..	..	..	..	11.2	2.4	2.2	2.4	2.6	3.2	3.0	-72.8%
Turkmenistan	..	..	..	..	52.4	34.7	36.3	41.5	41.9	45.9	47.5	-9.5%
Ukraine	..	..	..	..	699.1	428.8	325.7	335.4	325.7	324.7	323.8	-53.7%
Uzbekistan	..	..	..	..	120.6	103.8	122.4	112.7	116.9	117.1	120.2	-0.4%
Former Soviet Union *	2 368.9	2 842.6	3 242.5	3 448.3	3 843.6	2 524.7	2 305.4	2 406.4	2 478.1	2 469.6	2 535.0	-34.0%
Argentina	86.0	89.8	101.2	92.7	106.8	117.6	134.1	147.7	161.5	164.1	172.9	61.9%
Bolivia	2.3	3.4	4.5	4.6	5.3	8.4	11.2	9.4	9.5	13.1	12.8	141.6%
Brazil	93.9	143.9	189.8	180.5	205.0	253.4	311.3	330.0	334.3	349.8	368.3	79.7%
Chile	21.5	17.5	21.7	19.8	32.1	42.4	58.2	65.2	67.3	71.6	75.8	135.8%
Colombia	27.0	31.9	38.3	42.7	48.9	57.9	57.6	60.2	63.0	61.6	65.3	33.5%
Costa Rica	1.4	1.8	2.3	2.0	2.9	4.0	5.1	5.1	5.9	6.5	6.6	125.6%
Cuba	21.6	28.0	32.1	30.6	31.8	22.3	24.5	24.0	26.0	24.8	31.9	0.4%
Dominican Republic	3.4	5.6	6.5	7.1	9.3	13.5	18.9	18.3	18.8	19.2	19.5	109.2%
Ecuador	3.4	6.5	10.9	12.3	13.0	16.9	19.0	27.3	27.6	27.9	24.5	87.8%
El Salvador	1.5	2.1	1.8	1.9	2.3	4.8	5.3	5.9	5.9	6.3	5.6	139.0%
Guatemala	2.4	2.7	4.3	3.4	3.7	6.0	9.3	11.1	11.1	11.8	10.7	192.1%
Haiti	0.4	0.4	0.6	0.8	0.9	0.9	1.4	2.0	2.0	2.3	2.4	149.7%
Honduras	1.1	1.3	1.7	1.6	2.2	3.5	4.5	7.0	6.4	8.2	7.8	260.9%
Jamaica	5.2	7.4	6.4	4.5	7.1	8.4	10.0	9.9	11.8	13.7	11.9	68.5%
Netherlands Antilles	13.6	9.6	10.0	4.9	4.0	3.3	3.9	3.7	3.6	4.3	4.4	11.0%
Nicaragua	1.5	1.9	1.9	1.9	1.7	2.6	3.4	4.2	4.0	4.3	4.1	136.3%
Panama	3.8	3.8	2.6	2.8	2.6	4.1	5.4	5.7	6.5	6.5	6.6	157.9%
Paraguay	0.6	0.7	1.4	1.4	1.9	3.5	3.2	3.4	3.6	3.7	3.7	89.4%
Peru	16.1	19.4	21.8	18.4	18.2	22.8	26.0	28.6	26.2	28.6	32.2	76.5%
Trinidad and Tobago	5.0	4.8	8.3	11.0	12.7	13.3	19.6	32.4	40.2	38.3	39.5	210.8%
Uruguay	5.8	5.9	6.0	3.4	4.0	4.7	6.1	5.7	6.6	5.9	8.2	105.2%
Venezuela	43.6	60.3	88.8	99.1	105.0	116.7	125.7	135.2	133.9	140.9	141.5	34.7%
Other Latin America	11.6	15.5	15.1	9.3	12.5	13.4	14.6	16.0	16.4	16.8	17.2	37.2%
Latin America	372.9	464.1	577.9	556.8	634.1	744.3	878.4	958.0	992.1	1 030.1	1 073.4	69.3%
Bangladesh	3.4	4.7	7.2	9.3	14.1	21.3	26.7	38.1	41.3	43.6	47.4	235.1%
Brunei Darussalam	0.4	1.7	3.2	4.3	4.1	5.5	6.0	6.2	7.9	8.1	8.9	115.4%
Cambodia	..	..	..	..	..	1.4	2.3	3.8	4.1	4.4	4.6	..
Chinese Taipei	31.2	43.2	75.1	74.8	115.9	162.7	226.9	270.0	277.3	284.0	268.7	131.9%
India	197.8	237.6	293.0	428.7	599.6	799.7	982.9	1 195.3	1 272.9	1 368.6	1 459.1	143.3%
Indonesia	25.5	39.3	73.3	90.0	146.1	215.6	264.4	333.7	338.9	368.7	386.1	164.2%
DPR of Korea	69.4	79.6	108.6	129.8	117.6	75.8	68.9	74.4	75.5	62.4	69.5	-40.9%
Malaysia	13.8	16.9	29.5	38.3	55.4	93.3	118.5	163.3	165.3	180.8	191.5	245.8%
Mongolia	..	..	..	11.6	12.7	10.1	8.8	9.6	10.7	11.3	11.5	-9.1%
Myanmar	4.6	4.1	5.2	6.0	4.1	6.7	8.8	14.3	12.8	12.8	12.4	203.6%
Nepal	0.2	0.3	0.5	0.5	0.9	1.8	3.1	3.0	3.1	3.2	3.3	265.1%
Pakistan	17.1	21.2	27.1	40.4	61.4	82.9	102.6	122.4	131.0	143.5	138.2	125.0%
Philippines	24.2	29.3	33.7	26.7	39.1	58.7	68.9	71.1	68.7	71.8	73.8	88.6%
Singapore	7.0	9.7	14.1	16.2	29.3	50.9	48.4	51.5	49.7	37.4	33.9	15.9%
Sri Lanka	2.9	2.9	3.9	3.7	4.0	5.8	10.6	12.4	12.0	12.7	11.7	195.4%
Thailand	17.3	21.8	34.3	42.0	81.4	143.5	162.9	227.9	232.1	239.9	246.1	202.4%
Vietnam	16.1	16.7	14.8	17.2	17.3	28.0	44.4	81.4	85.8	93.8	102.8	494.7%
Other Asia	8.3	10.1	16.4	10.0	10.1	10.8	11.3	14.9	14.4	13.3	14.3	40.8%
Asia	439.3	539.3	740.0	949.6	1 313.1	1 774.4	2 166.4	2 693.4	2 803.6	2 960.5	3 083.9	134.9%
People's Rep. of China	867.6	1 133.9	1 489.2	1 794.7	2 371.1	2 957.8	3 054.6	5 130.0	5 682.5	6 043.7	6 558.2	176.6%
Hong Kong, China	9.1	11.1	14.3	23.2	31.2	34.9	39.2	40.1	42.3	45.8	44.3	42.1%
China	876.7	1 145.0	1 503.5	1 817.8	2 402.3	2 992.7	3 093.8	5 170.1	5 724.7	6 089.5	6 602.5	174.8%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World	344.47	328.58	343.93	291.73	354.77	408.72	468.61	522.28	556.62	589.09	578.20	63.0%
<i>Annex I Parties</i>	..	..	..	..	233.54	230.88	248.98	270.01	283.79	292.45	264.97	13.5%
<i>Annex II Parties</i>	202.63	216.81	234.71	171.25	223.39	227.72	245.93	263.56	277.60	286.83	259.45	16.1%
<i>North America</i>	26.41	36.12	93.91	56.43	93.55	93.68	92.24	83.63	89.86	97.98	73.54	-21.4%
<i>Europe</i>	120.20	110.37	97.05	87.88	109.00	112.20	133.04	156.44	164.95	166.65	164.80	51.2%
<i>Pacific</i>	56.02	70.31	43.75	26.94	20.84	21.85	20.65	23.48	22.79	22.20	21.11	1.3%
<i>Annex I EIT</i>	..	..	..	..	9.78	2.58	1.80	3.14	3.13	2.98	3.46	-64.6%
<i>Non-Annex I Parties</i>	..	..	..	..	121.22	177.85	219.63	252.27	272.84	296.64	313.23	158.4%
<i>Annex I Kyoto Parties</i>	..	..	..	..	142.49	139.79	158.82	184.94	192.57	193.86	191.04	34.1%
Non-OECD Total	138.16	108.73	105.69	115.58	124.49	156.09	186.24	218.46	238.96	265.26	283.48	127.7%
OECD Total	206.31	219.85	238.24	176.15	230.27	252.64	282.37	303.82	317.66	323.83	294.72	28.0%
Canada	3.07	2.58	4.71	1.18	2.87	3.17	3.34	1.88	1.70	2.02	1.67	-41.6%
Mexico	0.26	0.38	1.00	1.33	..	2.55	3.83	2.70	2.79	2.69	3.18	..
United States	23.34	33.54	89.20	55.26	90.68	90.51	88.90	81.76	88.16	95.96	71.87	-20.7%
OECD N. America	26.67	36.51	94.91	57.76	93.55	96.23	96.07	86.33	92.64	100.67	76.72	-18.0%
Australia	5.10	5.03	3.68	2.28	2.14	2.79	2.96	2.81	3.21	2.67	3.05	42.7%
Japan	49.88	64.20	38.90	23.92	17.66	17.92	16.93	19.80	18.63	18.54	16.97	-3.9%
Korea	1.53	0.17	0.31	1.69	5.27	21.35	30.46	33.24	33.30	30.90	29.16	453.5%
New Zealand	1.04	1.08	1.18	0.74	1.04	1.13	0.76	0.87	0.95	0.99	1.09	4.7%
OECD Pacific	57.55	70.48	44.06	28.63	26.11	43.20	51.11	56.72	56.09	53.10	50.28	92.5%
Austria	-	-	-	-	-	-	-	-	-	-	-	-
Belgium	8.06	8.64	7.52	7.30	12.91	12.31	17.02	24.40	26.40	29.54	30.49	136.3%
Czech Republic	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	2.09	1.67	1.32	1.34	3.02	4.96	4.18	2.57	3.34	3.46	3.04	0.6%
Finland	0.24	0.30	1.84	1.45	1.78	1.04	2.10	1.59	1.75	1.44	1.26	-29.4%
France	12.71	14.53	12.52	7.52	7.96	7.94	9.42	8.65	8.97	9.20	8.04	0.9%
Germany	12.93	10.52	11.00	10.85	7.79	6.43	6.85	7.83	8.11	9.66	9.36	20.1%
Greece	1.78	2.70	2.63	3.51	7.97	11.17	11.28	9.02	9.74	10.05	9.72	21.9%
Hungary	-	-	-	-	-	-	-	-	-	-	-	-
Iceland	..	..	..	0.02	0.10	0.14	0.21	0.20	0.11	0.20	0.19	96.5%
Ireland	0.24	0.20	0.23	0.09	0.06	0.36	0.47	0.32	0.38	0.34	0.27	377.6%
Italy	22.80	17.97	13.08	10.75	8.37	7.59	5.16	7.06	7.35	7.60	7.98	-4.7%
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	28.26	32.86	29.39	27.45	34.29	35.59	41.98	53.31	55.26	50.40	48.58	41.7%
Norway	1.90	1.49	0.87	1.03	1.39	2.19	2.56	2.16	1.56	2.05	1.49	7.1%
Poland	1.63	2.21	2.22	1.63	1.24	0.44	0.90	1.01	0.93	0.78	0.87	-30.1%
Portugal	2.32	2.00	1.34	1.48	1.91	1.52	2.08	1.82	2.00	2.10	2.24	17.3%
Slovak Republic	-	-	-	-	-	-	-	-	-	-	-	-
Spain	5.94	3.44	5.07	6.76	11.46	10.00	18.97	25.00	26.11	26.71	27.69	141.7%
Sweden	3.58	3.45	2.66	1.76	2.09	3.30	4.28	6.12	6.57	6.54	6.43	207.5%
Switzerland	..	..	..	..	0.06	0.05	0.03	0.04	0.03	0.03	0.03	-44.4%
Turkey	0.26	0.29	..	0.25	0.37	0.58	1.25	3.31	3.06	2.63	2.06	454.5%
United Kingdom	17.37	10.60	7.57	6.56	7.84	7.62	6.44	6.34	7.26	7.32	7.99	1.9%
OECD Europe	122.10	112.87	99.26	89.76	110.61	113.21	135.19	160.76	168.93	170.07	167.73	51.6%
<i>European Union - 27</i>	..	..	..	..	111.49	112.64	134.64	160.10	169.61	170.80	170.14	52.6%

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	138.16	108.73	105.69	115.58	124.49	156.09	186.24	218.46	238.96	265.26	283.48	127.7%
Algeria	0.61	0.77	1.29	1.16	1.36	1.17	0.77	1.17	1.07	1.09	1.01	-25.8%
Angola	0.77	0.48	0.83	0.10	0.02	0.03	..	0.35	0.05	0.04	0.04	188.7%
Benin	..	..	..	..	..	..	..	..	..	..	..	..
Botswana	..	..	..	..	..	..	..	..	..	..	..	..
Cameroon	..	..	0.12	0.03	0.04	0.09	0.06	0.04	0.13	0.16	0.16	275.5%
Congo	..	..	..	..	..	..	..	..	..	0.09	0.13	..
Dem. Rep. of Congo	0.40	0.22	0.08	0.09	0.10	0.01	..	..	..	..	..	..
Côte d'Ivoire	0.06	0.01	1.35	0.73	0.12	0.27	0.29	0.35	0.15	0.34	0.21	77.3%
Egypt	0.06	1.08	3.19	4.71	5.25	7.73	8.58	4.51	3.36	3.08	1.51	-71.3%
Eritrea	..	..	..	..	..	0.42	..	..	..	..	..	..
Ethiopia	0.07	0.01	0.01	0.03	0.04	0.52	..	..	..	..	..	..
Gabon	0.20	0.14	0.19	0.22	0.08	0.44	0.60	0.48	0.48	0.48	0.60	659.8%
Ghana	0.16	0.14	0.10	..	..	..	0.16	0.12	0.12	0.14	0.18	..
Kenya	1.47	1.05	0.56	0.45	0.55	0.17	0.26	0.00	0.00	0.00	0.00	-99.4%
Libyan Arab Jamahiriya	0.01	0.01	0.02	0.04	0.25	0.28	0.28	0.28	0.28	0.28	0.28	12.5%
Morocco	0.24	0.18	0.21	0.04	0.06	0.04	0.04	0.04	0.04	0.04	0.04	-34.9%
Mozambique	0.76	0.35	0.27	0.10	0.09	0.01	0.00	0.01	0.01	..	..	..
Namibia	..	..	..	..	..	..	..	..	..	..	..	..
Nigeria	0.02	0.11	0.25	0.34	0.58	1.42	1.69	2.28	2.42	2.58	2.71	367.4%
Senegal	2.99	2.09	0.84	0.33	0.11	0.09	0.30	0.36	0.24	0.27	0.23	100.9%
South Africa	10.81	7.15	5.25	3.41	5.95	10.28	8.51	8.52	8.07	8.48	8.74	46.8%
Sudan	..	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	14.3%
United Rep. of Tanzania	0.05	0.05	0.12	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	-11.5%
Togo	..	..	..	..	..	..	0.01	0.01	0.01	0.01	0.01	..
Tunisia	0.06	0.02	0.02	0.01	0.07	0.06	0.03	0.03	0.03	0.03	0.03	-62.9%
Zambia	..	..	..	..	..	..	..	..	..	..	..	..
Zimbabwe	..	..	..	..	..	..	..	..	..	..	..	..
Other Africa	3.02	2.08	1.77	1.82	1.71	1.68	2.00	1.75	1.73	1.74	1.84	7.5%
Africa	21.76	15.95	16.48	13.70	16.49	24.79	23.69	20.39	18.30	18.94	17.82	8.0%
Bahrain	3.27	1.95	1.50	0.64	..	..	..	..	..	..	..	..
Islamic Rep. of Iran	1.29	1.57	1.55	1.15	1.56	2.34	1.98	1.73	1.43	2.61	2.61	67.5%
Iraq	0.26	0.29	0.37	0.46	0.40	..	..	..	..	..	..	..
Israel	..	..	..	0.35	0.38	0.65	0.58	0.87	0.81	0.86	0.83	119.1%
Jordan	..	..	..	..	..	0.03	0.13	0.25	0.13	0.12	0.10	..
Kuwait	5.60	5.63	5.00	2.12	0.55	1.82	1.50	1.26	1.02	3.03	3.17	472.2%
Lebanon	0.71	0.03	..	..	..	0.04	0.05	0.06	0.06	0.06	0.07	..
Oman	3.85	2.54	0.71	0.35	0.06	0.08	0.19	0.00	..	..	..	..
Qatar	..	..	..	..	..	..	..	..	..	..	..	..
Saudi Arabia	40.05	25.86	13.62	28.01	5.74	5.96	6.60	7.09	8.27	8.66	8.85	54.3%
Syrian Arab Republic	..	..	..	..	..	..	..	..	..	..	..	..
United Arab Emirates	..	..	5.53	9.69	18.99	33.16	29.30	37.44	40.83	44.22	48.46	155.2%
Yemen	1.13	0.91	2.13	1.24	1.24	0.31	0.30	0.39	0.39	0.39	0.39	-68.2%
Middle East	56.17	38.79	30.42	44.02	28.93	44.39	40.64	49.08	52.93	59.95	64.49	122.9%
Albania	..	..	..	..	..	..	..	..	..	..	..	..
Bosnia and Herzegovina *	..	..	..	..	..	..	..	..	..	..	..	..
Bulgaria	..	..	..	0.71	0.18	0.85	0.20	0.34	0.33	0.16	0.38	110.3%
Croatia *	..	..	..	..	0.15	0.10	0.06	0.08	0.06	0.07	0.07	-53.6%
Cyprus	0.01	0.06	0.05	0.11	0.18	0.21	0.60	0.90	0.91	0.85	0.78	336.5%
Gibraltar	0.55	0.58	0.41	0.88	1.38	2.69	3.22	3.63	3.73	3.84	3.92	185.2%
FYR of Macedonia *	..	..	..	..	..	..	..	..	..	..	..	..
Malta	0.19	0.08	0.09	0.06	0.09	0.14	2.07	2.09	2.38	2.67	2.89	+
Romania	..	..	..	..	..	..	..	..	..	0.11	0.22	..
Serbia *	..	..	..	..	..	..	..	..	..	..	..	..
Slovenia *	..	..	..	..	..	..	..	0.07	0.09	0.15	0.21	..
Former Yugoslavia *	..	..	..	..	..	..	..	..	..	..	..	..
Non-OECD Europe	0.75	0.72	0.55	1.75	1.97	3.99	6.14	7.10	7.51	7.86	8.46	328.7%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions from international marine bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	-	-	-	-	-	-	-	-
Azerbaijan	..	..	..	..	..	..	..	..	..	..	..	..
Belarus	..	..	..	..	-	-	-	-	-	-	-	-
Estonia	..	..	..	..	0.57	0.28	0.33	0.38	0.67	0.78	0.79	39.2%
Georgia	..	..	..	..	..	0.16	..	..	..	..	..	..
Kazakhstan	..	..	..	..	..	..	..	..	..	..	..	..
Kyrgyzstan	..	..	..	..	-	-	-	-	-	-	-	-
Latvia	..	..	..	..	1.48	0.47	0.02	0.81	0.62	0.56	0.65	-56.4%
Lithuania	..	..	..	..	0.30	0.44	0.29	0.45	0.44	0.37	0.28	-4.9%
Republic of Moldova	..	..	..	..	..	..	..	..	..	..	..	..
Russian Federation	..	..	..	..	5.87	..	..	..	..	..	..	..
Tajikistan	..	..	..	..	-	-	-	-	-	-	-	-
Turkmenistan	..	..	..	..	..	..	..	..	..	..	..	..
Ukraine	..	..	..	..	..	..	..	..	..	..	..	..
Uzbekistan	..	..	..	..	-	-	-	-	-	-	-	-
Former Soviet Union *	13.17	14.09	14.09	13.79	8.21	1.35	0.64	1.64	1.72	1.71	1.72	-79.1%
Argentina	0.66	0.28	1.32	2.00	2.22	1.71	1.48	2.19	2.34	2.82	3.02	35.7%
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	1.00	1.17	1.42	1.71	1.72	3.64	9.16	10.92	10.49	11.29	14.17	726.0%
Chile	0.60	0.37	0.27	0.09	..	..	..	..	..	..	..	..
Colombia	0.95	0.49	0.31	0.22	0.33	0.58	0.72	1.05	1.21	1.22	1.23	274.0%
Costa Rica	..	..	..	..	..	..	..	..	..	..	..	..
Cuba	0.49	0.55	0.56	0.68	0.75	0.26	0.32	0.23	0.20	0.17	0.15	-79.8%
Dominican Republic	..	..	..	..	..	..	..	..	..	..	..	..
Ecuador	0.28	..	0.34	0.11	0.57	1.05	0.87	0.69	0.77	1.94	3.26	471.3%
El Salvador	..	..	..	..	..	..	..	..	..	..	..	..
Guatemala	0.18	0.27	0.40	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	-
Haiti	..	..	..	..	..	..	..	..	..	..	..	..
Honduras	..	..	..	..	..	..	..	..	..	..	..	..
Jamaica	0.16	0.26	0.10	0.04	0.09	0.09	0.09	0.09	0.09	0.09	0.09	-
Netherlands Antilles	7.71	7.34	7.27	6.13	5.18	5.32	5.20	5.46	5.55	5.65	5.77	11.5%
Nicaragua	..	..	..	..	..	..	..	..	..	..	..	..
Panama	..	..	..	..	..	..	..	..	..	..	..	..
Paraguay	-	-	-	-	-	-	-	-	-	-	-	-
Peru	0.04	0.05	0.38	0.53	0.03	0.41	0.13	0.71	0.31	0.47	0.47	+
Trinidad and Tobago	5.12	3.54	1.42	0.31	0.11	0.16	0.87	0.82	0.80	0.78	0.72	557.6%
Uruguay	0.27	0.20	0.24	0.33	0.37	1.21	0.90	1.11	0.77	1.04	1.36	268.7%
Venezuela	9.13	4.82	1.99	1.76	2.50	2.30	2.06	2.37	2.56	2.77	2.89	15.8%
Other Latin America	3.08	2.04	2.79	1.87	0.86	0.71	0.79	1.06	1.07	1.08	1.10	27.3%
Latin America	29.66	21.38	18.83	16.16	15.12	17.80	22.97	27.09	26.55	29.70	34.61	129.0%
Bangladesh	0.06	0.05	0.19	0.07	0.06	0.11	0.11	0.11	0.11	0.11	0.11	78.6%
Brunei Darussalam	..	..	..	..	..	..	..	..	..	..	..	..
Cambodia	..	..	..	..	..	..	..	..	..	..	..	..
Chinese Taipei	0.39	0.33	0.66	1.62	4.86	7.57	11.02	7.72	7.39	6.62	5.71	17.4%
India	0.71	0.57	0.72	0.34	0.47	0.39	0.27	0.08	0.05	0.15	0.45	-4.5%
Indonesia	0.70	1.09	0.79	0.68	1.68	1.28	0.36	1.17	1.23	1.31	1.39	-17.5%
DPR of Korea	..	..	..	..	..	..	..	..	..	..	..	..
Malaysia	0.11	0.22	0.18	0.31	0.28	0.52	0.67	0.26	0.27	0.21	0.19	-32.9%
Mongolia	..	..	..	..	..	..	..	..	..	..	..	..
Myanmar	0.01	0.00	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	x
Nepal	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	0.29	0.21	0.47	0.08	0.11	0.05	0.08	0.25	0.32	0.41	0.54	402.2%
Philippines	1.27	0.44	0.59	0.49	0.21	0.35	0.67	0.37	0.40	0.74	0.72	253.3%
Singapore	8.89	10.43	14.96	15.14	33.87	35.28	52.93	54.72	67.08	76.78	93.24	175.3%
Sri Lanka	1.19	1.29	1.10	1.01	1.21	1.09	0.50	0.53	0.43	0.54	0.63	-48.1%
Thailand	0.21	0.25	0.50	0.65	1.70	3.02	2.46	5.18	5.26	5.06	5.18	204.4%
Vietnam	..	..	..	..	..	..	..	..	..	..	..	..
Other Asia	0.57	0.53	0.46	0.20	0.21	0.33	0.32	0.47	0.47	0.46	0.49	137.4%
Asia	14.39	15.42	20.61	20.58	44.66	49.99	69.41	70.88	83.03	92.40	108.66	143.3%
People's Rep. of China	0.30	0.69	1.87	2.47	4.59	6.62	12.13	24.47	26.10	28.70	26.22	471.2%
Hong Kong, China	1.96	1.69	2.83	3.11	4.52	7.16	10.61	17.79	22.81	25.99	21.49	375.2%
China	2.26	2.37	4.70	5.58	9.11	13.78	22.74	42.27	48.91	54.70	47.71	423.6%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World	168.94	173.44	201.28	224.03	258.22	287.81	354.42	421.57	436.25	446.59	454.85	76.1%
<i>Annex I Parties</i>	..	..	..	..	167.58	177.40	220.98	251.09	255.22	259.68	263.39	57.2%
<i>Annex II Parties</i>	58.57	61.75	70.77	81.47	130.42	158.12	202.31	227.16	230.43	234.01	235.99	80.9%
<i>North America</i>	16.61	17.53	21.18	21.83	41.50	48.54	60.20	70.76	71.06	71.96	72.24	74.1%
<i>Europe</i>	35.96	37.67	42.70	48.59	69.97	85.65	113.65	124.29	128.70	131.91	134.63	92.4%
<i>Pacific</i>	6.01	6.55	6.90	11.05	18.96	23.94	28.46	32.12	30.67	30.14	29.13	53.7%
<i>Annex I EIT</i>	..	..	..	..	36.63	18.50	17.12	20.71	21.88	22.25	23.54	-35.7%
<i>Non-Annex I Parties</i>	..	..	..	..	90.64	110.42	133.44	170.48	181.03	186.91	191.46	111.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	128.26	130.66	162.32	179.67	183.77	185.85	188.95	47.3%
Non-OECD Total	107.53	107.49	123.45	134.41	119.38	118.07	138.74	172.62	182.02	186.70	190.71	59.7%
OECD Total	61.42	65.95	77.83	89.62	138.84	169.74	215.68	248.95	254.23	259.89	264.13	90.2%
Canada	1.25	1.93	1.35	1.22	2.71	2.58	3.08	2.55	2.53	1.55	1.66	-38.7%
Mexico	1.39	2.40	4.23	4.53	5.23	6.75	8.05	8.52	8.88	9.84	9.42	80.1%
United States	15.35	15.60	19.83	20.61	38.79	45.96	57.11	68.21	68.54	70.41	70.58	81.9%
OECD N. America	17.99	19.92	25.41	26.36	46.73	55.29	68.25	79.28	79.94	81.80	81.65	74.7%
Australia	1.57	1.89	2.40	2.76	4.29	5.75	7.15	8.10	8.18	9.13	9.05	110.7%
Japan	3.80	4.32	3.92	7.63	13.31	16.61	19.57	21.37	19.84	18.39	17.55	31.8%
Korea	-	0.36	0.83	1.69	0.84	2.05	1.70	7.25	8.83	9.39	11.28	+
New Zealand	0.64	0.34	0.57	0.66	1.35	1.58	1.74	2.65	2.65	2.62	2.54	87.6%
OECD Pacific	6.01	6.91	7.72	12.74	19.80	25.99	30.16	39.36	39.50	39.53	40.41	104.1%
Austria	0.28	0.24	0.38	0.65	0.82	1.29	1.63	1.67	1.75	1.68	1.78	117.5%
Belgium	1.21	1.05	1.22	1.62	2.82	2.61	4.37	3.80	3.49	3.00	6.05	114.9%
Czech Republic	0.69	0.58	0.85	0.63	0.65	0.56	0.48	0.94	0.99	1.02	0.99	52.1%
Denmark	1.92	1.56	1.59	1.56	1.70	1.84	2.32	2.55	2.56	2.63	2.61	53.2%
Finland	0.18	0.40	0.46	0.48	0.97	0.86	1.02	1.24	1.38	1.59	1.72	76.6%
France	4.57	5.71	5.62	6.43	9.32	11.44	15.07	16.10	16.86	17.47	17.58	88.5%
Germany	7.57	8.16	8.22	9.46	12.58	14.13	17.39	19.69	20.69	21.45	21.73	72.8%
Greece	1.29	1.31	2.23	2.33	2.34	2.52	2.41	2.30	2.76	2.82	2.94	25.5%
Hungary	0.15	0.20	0.36	0.44	0.49	0.54	0.69	0.79	0.80	0.74	0.82	68.1%
Iceland	0.22	0.13	0.09	0.18	0.22	0.20	0.39	0.40	0.53	0.49	0.35	60.6%
Ireland	0.96	0.73	0.60	0.57	1.03	1.11	1.73	2.35	2.40	2.87	2.69	161.1%
Italy	3.47	2.44	4.15	4.33	4.50	5.80	8.38	8.88	9.52	10.11	9.76	117.1%
Luxembourg	0.11	0.15	0.19	0.22	0.39	0.56	0.95	1.28	1.20	1.29	1.32	238.3%
Netherlands	2.01	2.26	2.72	3.47	4.29	7.38	9.65	10.67	10.81	10.87	11.02	156.6%
Norway	0.70	0.51	0.67	0.92	1.24	1.09	1.05	1.04	1.20	1.12	1.13	-9.0%
Poland	0.52	0.53	0.67	0.67	0.68	0.82	0.82	0.96	1.27	1.33	1.59	134.1%
Portugal	0.70	0.80	0.88	1.27	1.49	1.49	1.69	2.13	2.28	2.61	2.76	85.5%
Slovak Republic	-	-	-	-	-	0.12	0.08	0.12	0.12	0.15	0.19	x
Spain	1.74	2.77	2.58	2.67	3.32	6.01	8.03	9.18	9.57	10.07	10.11	204.3%
Sweden	0.33	0.33	0.49	0.51	1.07	1.76	2.06	1.87	1.96	1.93	2.32	115.6%
Switzerland	1.63	1.80	2.02	2.41	3.00	3.63	4.57	3.48	3.68	3.87	4.14	38.0%
Turkey	0.09	0.14	0.12	0.18	0.53	0.78	1.54	3.21	2.91	3.42	3.86	624.6%
United Kingdom	7.08	7.32	8.59	9.53	18.86	21.92	30.93	35.65	36.06	36.04	34.63	83.6%
OECD Europe	37.41	39.12	44.70	50.51	72.32	88.46	117.27	130.31	134.79	138.56	142.07	96.5%
<i>European Union - 27</i>	..	..	..	..	70.44	85.61	111.80	124.72	129.07	132.35	135.53	92.4%

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	107.53	107.49	123.45	134.41	119.38	118.07	138.74	172.62	182.02	186.70	190.71	59.7%
Algeria	0.29	0.66	0.93	1.31	1.09	0.96	1.17	1.16	1.14	1.12	1.25	14.8%
Angola	0.23	0.31	0.25	0.99	1.03	1.17	1.42	0.56	0.24	0.35	0.42	-59.2%
Benin	0.02	0.01	0.03	0.06	0.05	0.07	0.07	0.07	0.08	0.08	0.08	62.5%
Botswana	..	..	..	0.01	0.03	0.02	0.02	0.03	0.03	0.03	0.05	45.5%
Cameroon	0.17	0.10	0.15	0.15	0.15	0.17	0.18	0.20	0.13	0.20	0.21	32.7%
Congo	-	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	0.28	0.24	0.37	0.40	0.32	0.35	0.24	0.50	0.64	0.53	0.05	-85.3%
Côte d'Ivoire	0.13	0.21	0.27	0.29	0.27	0.26	0.37	0.28	0.28	0.15	0.17	-36.5%
Egypt	0.21	0.27	0.51	0.12	0.44	0.79	1.71	2.23	2.45	3.05	2.75	522.9%
Eritrea	..	..	..	..	..	0.02	0.03	0.03	0.02	0.02	0.01	..
Ethiopia	0.14	0.16	0.20	0.34	0.53	0.20	0.24	0.46	0.56	0.69	0.68	27.5%
Gabon	0.03	0.04	0.07	0.08	0.20	0.19	0.24	0.21	0.20	0.16	0.19	-0.2%
Ghana	0.13	0.15	0.12	0.10	0.14	0.18	0.32	0.39	0.38	0.40	0.39	182.2%
Kenya	0.57	0.89	1.10	0.82	0.83	1.37	1.36	1.76	1.87	2.02	1.76	112.5%
Libyan Arab Jamahiriya	0.27	0.53	0.89	1.05	0.63	0.91	1.33	0.58	0.55	0.57	0.59	-6.5%
Morocco	0.35	0.44	0.78	0.70	0.79	0.73	0.90	1.16	1.32	1.53	1.53	94.4%
Mozambique	0.12	0.05	0.08	0.09	0.13	0.06	0.13	0.14	0.17	0.20	0.18	41.5%
Namibia	..	..	..	..	..	-	-	-	-	-	-	..
Nigeria	0.24	0.70	1.14	1.33	0.95	1.25	0.58	0.70	0.71	0.73	2.63	175.8%
Senegal	0.30	0.37	0.58	0.43	0.45	0.45	0.75	0.74	0.80	0.98	1.00	119.0%
South Africa	0.53	0.73	0.87	0.93	1.09	1.58	2.79	2.21	2.44	2.55	2.60	137.4%
Sudan	0.34	0.14	0.20	0.21	0.09	0.10	0.33	0.87	0.95	1.01	1.03	985.3%
United Rep. of Tanzania	0.08	0.20	0.17	0.13	0.22	0.19	0.18	0.26	0.28	0.30	0.32	46.0%
Togo	-	-	-	-	0.10	0.12	0.03	0.15	0.11	0.09	0.19	78.8%
Tunisia	0.39	0.38	0.56	0.30	0.57	0.74	0.85	0.65	0.65	0.68	0.37	-35.8%
Zambia	0.04	0.14	0.23	0.12	0.19	0.10	0.13	0.16	0.16	0.10	0.12	-38.1%
Zimbabwe	0.08	0.19	0.21	0.33	0.25	0.35	0.36	0.03	0.03	0.03	0.03	-89.9%
Other Africa	-	-	0.91	0.91	0.84	0.98	1.41	1.62	1.60	1.69	1.79	112.9%
Africa	4.93	6.90	10.62	11.22	11.40	13.29	17.12	17.17	17.78	19.25	20.37	78.7%
Bahrain	0.43	0.84	1.53	1.21	1.43	1.15	1.12	1.72	1.86	1.85	1.84	28.5%
Islamic Rep. of Iran	7.02	7.01	2.15	1.64	1.48	1.97	2.70	2.68	3.14	3.13	3.22	117.2%
Iraq	0.24	0.81	1.05	1.12	2.89	1.34	1.80	2.19	2.38	1.90	1.99	-31.2%
Israel	1.79	1.88	2.21	1.99	1.56	2.10	2.35	2.19	1.91	2.01	1.95	24.5%
Jordan	0.14	0.22	0.62	0.68	0.71	0.77	0.77	0.99	0.95	0.92	0.93	32.0%
Kuwait	0.34	0.34	1.04	0.97	0.51	1.12	1.15	1.82	1.75	1.92	2.15	320.4%
Lebanon	0.83	0.76	0.58	0.38	0.19	0.66	0.40	0.46	0.33	0.41	0.53	178.3%
Oman	0.01	0.15	0.38	0.57	0.93	0.46	0.65	1.24	1.28	1.30	1.36	45.9%
Qatar	-	0.16	0.23	0.24	0.34	0.43	0.57	1.43	1.85	2.34	2.71	686.2%
Saudi Arabia	0.47	1.40	3.45	4.57	6.14	5.71	5.72	5.22	5.43	5.64	5.86	-4.6%
Syrian Arab Republic	0.24	0.65	0.72	0.87	0.87	0.62	0.41	0.33	0.31	0.19	0.20	-77.5%
United Arab Emirates	0.02	0.34	0.80	1.80	9.79	10.08	9.87	11.04	11.33	11.81	12.27	25.3%
Yemen	0.09	0.18	0.21	0.46	0.17	0.28	0.38	0.36	0.35	0.40	0.36	107.3%
Middle East	11.63	14.76	14.98	16.50	27.03	26.70	27.87	31.68	32.85	33.82	35.36	30.8%
Albania	-	-	-	-	-	-	0.12	0.22	0.26	0.32	0.38	x
Bosnia and Herzegovina *	..	..	..	..	0.08	-	-	-	-	-	-	..
Bulgaria	0.61	0.61	0.91	1.11	0.71	0.98	0.24	0.56	0.53	0.54	0.63	-11.2%
Croatia *	..	..	..	..	0.15	0.17	0.10	0.12	0.12	0.13	0.15	4.2%
Cyprus	0.15	0.02	0.23	0.44	0.72	0.79	0.82	0.89	0.91	0.87	0.87	21.2%
Gibraltar	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	-42.9%
FYR of Macedonia *	..	..	..	..	0.02	0.09	0.09	0.02	0.01	0.02	0.02	20.0%
Malta	0.17	0.18	0.23	0.14	0.21	0.22	0.37	0.26	0.23	0.27	0.38	78.6%
Romania	0.06	0.05	-	-	0.69	0.54	0.37	0.33	0.40	0.32	0.36	-47.6%
Serbia *	..	..	..	..	0.43	0.11	0.09	0.15	0.16	0.14	0.14	-66.4%
Slovenia *	..	..	..	..	0.08	0.06	0.07	0.07	0.07	0.09	0.10	30.8%
Former Yugoslavia *	0.64	0.88	1.00	0.99	-	-	-	-	-	-	-	-
Non-OECD Europe	1.65	1.76	2.39	2.70	3.09	2.98	2.27	2.61	2.72	2.72	3.05	-1.4%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions from international aviation bunkersmillion tonnes of CO₂

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	0.59	0.10	0.19	0.13	0.12	0.17	0.17	-71.1%
Azerbaijan	..	..	..	..	0.71	1.27	0.36	1.45	1.48	1.16	1.31	84.1%
Belarus	..	..	..	..	-	-	-	-	-	-	-	-
Estonia	..	..	..	..	0.09	0.05	0.06	0.14	0.09	0.15	0.08	-12.9%
Georgia	..	..	..	..	0.60	0.01	0.05	0.11	0.11	0.14	0.12	-79.7%
Kazakhstan	..	..	..	..	2.68	0.78	0.34	0.70	0.75	0.93	0.97	-63.8%
Kyrgyzstan	..	..	..	..	0.26	0.19	0.12	0.38	0.94	0.97	1.20	358.1%
Latvia	..	..	..	..	0.22	0.08	0.08	0.17	0.19	0.24	0.29	32.4%
Lithuania	..	..	..	..	0.40	0.12	0.08	0.14	0.16	0.21	0.23	-43.5%
Republic of Moldova	..	..	..	..	0.22	0.03	0.06	0.04	0.04	0.04	0.04	-83.3%
Russian Federation	..	..	..	..	26.37	13.99	13.27	15.27	16.13	16.28	17.34	-34.2%
Tajikistan	..	..	..	..	0.05	0.02	0.01	0.01	0.01	0.01	0.01	-73.3%
Turkmenistan	..	..	..	..	-	-	-	-	-	-	-	-
Ukraine	..	..	..	..	6.11	0.47	0.78	1.11	0.99	1.06	0.78	-87.3%
Uzbekistan	..	..	..	..	-	-	-	-	-	-	-	-
Former Soviet Union *	66.66	62.09	70.62	76.70	38.29	17.11	15.38	19.65	21.02	21.37	22.52	-41.2%
Argentina	-	-	-	-	-	1.58	2.83	2.14	2.06	2.25	2.41	x
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	-	-	0.61	0.74	1.41	2.06	2.00	3.30	3.82	4.14	4.72	234.3%
Chile	0.43	0.35	0.54	0.49	-	-	-	-	-	-	-	-
Colombia	0.77	1.03	1.42	1.39	1.56	2.14	1.89	1.83	1.75	1.53	1.72	10.0%
Costa Rica	-	-	-	-	-	0.31	0.36	0.57	0.56	0.54	0.56	x
Cuba	0.28	0.45	0.49	0.67	1.02	0.56	0.65	0.54	0.57	0.55	0.45	-55.7%
Dominican Republic	0.08	0.10	0.17	0.16	0.11	0.17	0.22	0.31	0.30	0.29	0.31	172.2%
Ecuador	0.27	0.14	0.45	0.45	0.39	0.55	0.66	0.96	1.00	1.04	1.04	166.7%
El Salvador	0.03	0.05	0.05	0.10	0.11	0.15	0.22	0.24	0.23	0.36	0.34	217.6%
Guatemala	0.15	0.11	0.13	0.12	0.13	0.14	0.15	0.12	0.12	0.09	0.07	-43.8%
Haiti	0.02	0.03	0.05	0.04	0.07	0.07	0.09	0.07	0.08	0.06	0.07	-8.7%
Honduras	0.02	0.03	0.06	0.12	0.09	0.07	0.11	0.07	0.09	0.08	0.14	55.2%
Jamaica	0.42	0.33	0.30	0.39	0.46	0.52	0.53	0.60	0.78	0.76	0.63	35.4%
Netherlands Antilles	0.15	0.13	0.16	0.13	0.12	0.20	0.20	0.21	0.21	0.21	0.22	86.5%
Nicaragua	0.05	0.06	0.06	0.04	0.08	0.06	0.08	0.05	0.05	0.08	0.08	-3.8%
Panama	0.43	1.11	0.41	0.26	0.20	0.31	0.54	0.57	0.67	0.81	0.94	364.1%
Paraguay	0.03	0.04	0.06	0.06	0.03	0.03	0.04	0.05	0.07	0.07	0.06	95.8%
Peru	0.51	0.74	0.92	0.71	0.64	1.10	1.06	0.96	1.43	0.52	1.78	176.5%
Trinidad and Tobago	0.21	0.12	0.17	0.22	0.20	0.17	0.18	0.18	0.22	0.25	0.19	-3.2%
Uruguay	-	-	-	-	-	-	-	-	-	0.20	0.19	x
Venezuela	0.29	0.37	0.73	0.81	1.02	1.00	0.94	2.31	2.13	0.44	0.46	-54.8%
Other Latin America	1.10	0.63	0.90	0.86	1.01	1.07	1.70	1.18	1.20	1.22	1.24	22.8%
Latin America	5.25	5.81	7.68	7.76	8.66	12.27	14.45	16.26	17.35	15.49	17.60	103.3%
Bangladesh	0.06	0.08	0.15	0.22	0.27	0.30	0.38	0.87	0.86	0.75	0.65	139.5%
Brunei Darussalam	0.00	0.06	0.07	0.05	0.11	0.21	0.21	0.25	0.23	0.24	0.28	147.2%
Cambodia	..	..	..	..	..	0.03	0.06	0.06	0.08	0.09	0.09	..
Chinese Taipei	1.48	1.62	1.66	0.92	1.79	4.09	5.38	6.46	6.72	6.64	5.72	219.2%
India	2.39	2.83	3.55	4.59	5.29	6.57	7.10	10.40	12.57	14.34	14.06	165.7%
Indonesia	0.16	0.32	0.73	0.65	0.96	1.78	1.52	2.23	2.19	3.49	3.65	279.0%
DPR of Korea	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia	0.42	0.74	0.80	0.89	1.94	3.44	4.67	5.96	6.38	6.39	6.26	223.0%
Mongolia	..	..	..	-	0.01	0.06	0.06	0.06	0.13	0.12	0.10	700.0%
Myanmar	0.09	0.08	0.13	0.13	0.09	0.14	0.20	0.15	0.24	0.20	0.19	114.3%
Nepal	0.01	0.02	0.04	0.06	0.05	0.11	0.17	0.19	0.20	0.20	0.21	333.3%
Pakistan	1.13	1.08	1.69	1.41	1.39	1.70	2.28	2.84	2.72	2.27	2.38	71.0%
Philippines	0.75	0.88	0.69	1.08	1.14	1.31	1.60	2.39	2.39	3.20	2.99	162.1%
Singapore	0.70	1.32	2.71	3.19	5.63	7.81	18.12	19.63	20.61	21.01	21.63	284.0%
Sri Lanka	-	0.00	0.00	-	-	-	0.32	0.93	0.95	0.32	0.30	x
Thailand	1.26	2.17	2.39	3.12	5.58	7.51	8.27	10.17	10.70	11.67	10.98	96.6%
Vietnam	6.88	2.60	-	-	-	0.12	0.30	0.79	0.85	0.81	0.87	x
Other Asia	0.66	0.52	0.33	0.47	0.51	0.33	0.61	0.96	1.17	1.15	1.24	140.3%
Asia	16.00	14.33	14.93	16.77	24.79	35.53	51.22	64.35	68.99	72.91	71.61	188.9%
People's Rep. of China	-	-	-	0.22	0.50	0.99	2.13	6.19	7.29	6.59	6.04	+
Hong Kong, China	1.41	1.83	2.24	2.55	5.62	9.22	8.31	14.71	14.02	14.56	14.15	151.7%
China	1.41	1.83	2.24	2.77	6.12	10.20	10.43	20.90	21.31	21.15	20.19	230.0%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions by sector in 2008 *million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industries **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ***	29 381.4	11 987.9	1 491.9	5 943.6	6 604.7	4 848.4	3 353.4	1 905.1
<i>Annex I Parties</i>	<i>13 903.8</i>	<i>5 785.4</i>	<i>684.4</i>	<i>2 035.6</i>	<i>3 479.4</i>	<i>2 977.0</i>	<i>1 919.1</i>	<i>1 117.6</i>
<i>Annex II Parties</i>	<i>10 951.8</i>	<i>4 295.2</i>	<i>563.4</i>	<i>1 549.1</i>	<i>3 023.9</i>	<i>2 656.4</i>	<i>1 520.2</i>	<i>843.2</i>
<i>North America</i>	<i>6 146.8</i>	<i>2 522.7</i>	<i>333.5</i>	<i>730.9</i>	<i>1 853.5</i>	<i>1 582.7</i>	<i>706.2</i>	<i>373.6</i>
<i>Europe</i>	<i>3 222.9</i>	<i>1 063.9</i>	<i>164.4</i>	<i>514.3</i>	<i>850.5</i>	<i>790.6</i>	<i>629.8</i>	<i>402.8</i>
<i>Pacific</i>	<i>1 582.0</i>	<i>708.7</i>	<i>65.5</i>	<i>303.8</i>	<i>319.9</i>	<i>283.1</i>	<i>184.2</i>	<i>66.8</i>
<i>Annex I EIT</i>	<i>2 688.5</i>	<i>1 386.0</i>	<i>112.6</i>	<i>448.0</i>	<i>410.3</i>	<i>281.1</i>	<i>331.5</i>	<i>234.8</i>
<i>Non-Annex I Parties</i>	<i>14 444.6</i>	<i>6 202.5</i>	<i>807.4</i>	<i>3 908.1</i>	<i>2 092.3</i>	<i>1 871.4</i>	<i>1 434.3</i>	<i>787.6</i>
<i>Annex I Kyoto Parties</i>	<i>7 980.1</i>	<i>3 245.4</i>	<i>406.2</i>	<i>1 351.2</i>	<i>1 736.1</i>	<i>1 477.3</i>	<i>1 241.2</i>	<i>737.7</i>
Non-OECD Total	15 718.8	6 995.8	819.6	4 124.6	2 185.1	1 849.0	1 593.6	920.7
OECD Total	12 629.6	4 992.0	672.3	1 819.1	3 386.5	2 999.4	1 759.8	984.4
Canada	550.9	119.3	65.1	97.9	162.0	126.9	106.6	40.9
Mexico	408.3	113.9	50.1	60.8	151.4	146.8	32.1	19.3
United States	5 595.9	2 403.4	268.3	633.1	1 691.6	1 455.9	599.5	332.7
OECD N. America	6 555.1	2 636.6	383.6	791.7	2 004.9	1 729.5	738.3	392.8
Australia	397.5	227.1	22.8	50.2	79.7	67.9	17.8	7.7
Japan	1 151.1	472.2	41.2	247.5	226.2	202.6	164.1	58.8
Korea	501.3	229.6	32.9	95.9	84.2	78.8	58.6	32.6
New Zealand	33.3	9.4	1.5	6.1	13.9	12.7	2.3	0.4
OECD Pacific	2 083.3	938.3	98.4	399.7	404.0	361.8	242.8	99.4
Austria	69.3	15.2	8.4	12.6	22.1	20.8	11.0	7.4
Belgium	111.0	23.0	5.3	27.4	27.1	26.6	28.2	18.6
Czech Republic	116.8	63.7	2.8	20.7	17.8	16.9	11.8	6.7
Denmark	48.4	21.8	2.5	4.8	13.7	12.8	5.6	2.9
Finland	56.6	24.3	2.7	12.2	12.7	11.5	4.7	1.9
France	368.2	50.8	18.9	70.5	124.7	118.7	103.4	58.5
Germany	803.9	337.3	26.0	118.1	148.4	139.9	174.1	121.4
Greece	93.4	46.4	3.5	9.2	22.1	19.0	12.3	8.3
Hungary	53.0	18.4	1.5	7.0	12.8	12.6	13.2	8.6
Iceland	2.2	0.0	-	0.7	0.9	0.8	0.6	0.0
Ireland	43.8	14.3	0.5	5.0	13.4	13.0	10.6	7.1
Italy	430.1	146.9	17.6	68.0	117.0	109.6	80.6	48.9
Luxembourg	10.4	1.1	-	1.5	6.4	6.4	1.4	1.3
Netherlands	177.9	57.2	10.8	37.8	35.0	33.8	37.1	16.8
Norway	37.6	0.8	11.8	8.0	14.0	10.4	3.0	0.5
Poland	299	158	8	38	44	43	50	31
Portugal	52	19	2	8	19	18	4	2
Slovak Republic	36	9	5	9	7	6	6	3
Spain	318	101	18	55	109	95	34	19
Sweden	46	8	3	10	23	22	2	0
Switzerland	44	2	1	7	17	17	17	11
Turkey	264	104	8	39	45	40	67	40
United Kingdom	511	195	32	59	125	115	100	76
OECD Europe	3 991	1 417	190	628	978	908	779	492
<i>European Union - 27</i>	<i>3 850</i>	<i>1 409</i>	<i>179</i>	<i>610</i>	<i>943</i>	<i>880</i>	<i>708</i>	<i>451</i>

* This table shows CO₂ emissions for the same sectors which are present throughout this publication. In particular, the emissions from electricity and heat production are shown separately and not reallocated as in the table on pages II.28-II.30.

** Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

*** World includes international bunkers in the transport sector.

CO₂ emissions by sector in 2008million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industries	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	15 718.8	6 995.8	819.6	4 124.6	2 185.1	1 849.0	1 593.6	920.7
Algeria	88.1	24.0	10.5	11.9	19.7	17.7	21.9	21.9
Angola	10.6	0.2	0.2	2.5	5.3	3.5	2.3	0.9
Benin	3.3	0.1	-	0.2	2.0	2.0	1.0	1.0
Botswana	4.5	1.1	-	1.2	2.0	1.9	0.2	0.1
Cameroon	4.3	1.3	0.2	0.3	2.2	2.1	0.4	0.4
Congo	1.5	0.0	-	0.1	1.3	1.1	0.1	0.1
Dem. Rep. of Congo	2.8	0.0	-	1.0	0.6	0.6	1.2	0.3
Côte d'Ivoire	6.5	2.6	0.2	0.6	1.6	1.3	1.5	0.5
Egypt	174.0	60.2	14.7	40.8	38.1	35.0	20.3	14.1
Eritrea	0.5	0.2	-	0.0	0.1	0.1	0.1	0.1
Ethiopia	6.8	0.4	-	1.7	3.9	3.9	0.8	0.8
Gabon	3.0	0.8	0.0	1.2	0.6	0.6	0.3	0.2
Ghana	7.3	1.8	0.1	1.1	3.6	3.4	0.6	0.4
Kenya	8.6	2.3	0.5	1.4	3.2	3.1	1.3	0.8
Libyan Arab Jamahiriya	44.8	25.4	2.5	4.2	10.2	10.2	2.5	2.5
Morocco	42.1	14.9	0.7	7.2	10.8	10.8	8.5	4.0
Mozambique	1.9	0.0	0.0	0.4	1.4	1.2	0.2	0.1
Namibia	3.9	0.9	-	0.3	1.9	1.7	0.9	-
Nigeria	52.4	8.5	10.6	5.3	25.4	25.3	2.5	2.5
Senegal	5.1	1.4	0.0	0.9	2.3	2.1	0.4	0.4
South Africa	337.4	213.3	4.4	45.4	45.8	42.3	28.4	16.2
Sudan	12.1	2.8	0.5	1.2	6.7	6.7	0.9	0.7
United Rep. of Tanzania	5.8	1.1	-	0.8	3.3	3.3	0.7	0.6
Togo	1.1	0.0	-	0.1	0.9	0.9	0.1	0.1
Tunisia	20.7	8.0	0.2	3.7	4.8	4.7	4.1	1.9
Zambia	1.6	0.0	0.0	0.8	0.5	0.4	0.2	-
Zimbabwe	8.8	4.9	0.0	1.4	1.1	1.0	1.3	0.1
Other Africa	30.4	7.9	0.1	4.9	12.3	10.7	5.3	2.0
Africa	889.9	384.4	45.6	140.4	211.6	197.4	107.9	72.4
Bahrain	22.3	7.8	4.3	6.9	3.1	3.0	0.2	0.2
Islamic Rep. of Iran	505.0	124.8	21.8	113.3	110.2	110.2	134.9	99.9
Iraq	97.4	29.9	4.8	23.4	30.2	30.2	9.0	9.0
Israel	63.1	39.1	2.9	1.7	10.3	10.3	9.0	2.8
Jordan	18.4	8.2	0.7	2.6	4.6	4.5	2.4	1.5
Kuwait	69.5	31.8	15.6	10.8	10.7	10.7	0.5	0.5
Lebanon	15.2	7.5	-	1.7	4.3	4.3	1.6	1.6
Oman	34.9	13.5	6.3	8.1	5.3	5.3	1.7	0.4
Qatar	53.9	11.5	16.6	17.0	8.6	8.6	0.2	0.2
Saudi Arabia	389.2	154.0	46.1	89.1	96.0	94.0	4.0	4.0
Syrian Arab Republic	54.4	25.1	2.0	11.4	12.1	11.7	3.8	1.6
United Arab Emirates	146.9	72.6	2.0	43.7	25.2	25.2	3.4	3.4
Yemen	21.9	4.2	3.4	2.5	5.9	5.9	6.0	2.0
Middle East	1 492.3	529.9	126.6	332.3	326.6	324.2	176.9	127.3
Albania	3.9	0.1	0.2	0.6	2.3	2.0	0.7	0.2
Bosnia and Herzegovina	19.5	13.4	0.1	1.3	2.8	2.7	1.9	0.1
Bulgaria	48.8	30.0	1.3	7.4	8.3	7.5	1.8	0.9
Croatia	20.9	5.3	1.6	4.4	6.2	5.7	3.4	2.0
Cyprus	7.6	3.9	-	1.1	2.0	2.0	0.6	0.3
Gibraltar	0.5	0.1	-	0.1	0.3	0.3	-	-
FYR of Macedonia	9.0	6.1	0.0	1.3	1.2	1.2	0.4	0.1
Malta	2.6	2.0	-	-	0.5	0.5	0.1	0.1
Romania	89.9	38.7	6.6	20.0	14.9	13.6	9.6	6.0
Serbia	49.2	31.0	0.1	8.3	6.5	5.6	3.3	2.0
Slovenia	16.7	6.2	0.0	2.4	5.9	5.9	2.1	1.2
Non-OECD Europe	268.6	136.9	10.0	47.0	50.8	47.1	23.9	13.0

CO₂ emissions by sector in 2008million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industries	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Armenia	5.3	1.0	-	2.0	0.8	0.8	1.4	-
Azerbaijan	29.3	12.6	2.2	2.2	5.2	4.8	7.2	6.3
Belarus	64.2	32.5	1.5	12.7	6.6	4.4	10.9	7.6
Estonia	17.6	13.2	0.1	1.4	2.3	2.2	0.5	0.2
Georgia	4.7	0.7	0.2	0.7	1.8	1.7	1.3	0.7
Kazakhstan	201.6	83.6	12.0	44.9	14.2	12.5	46.9	0.6
Kyrgyzstan	5.9	1.4	-	1.7	1.4	1.4	1.4	-
Latvia	7.9	2.0	-	1.1	3.5	3.3	1.2	0.4
Lithuania	14.2	3.0	2.0	3.0	5.0	4.6	1.2	0.6
Republic of Moldova	7.1	3.4	-	0.7	1.0	0.9	2.0	1.4
Russian Federation	1 593.8	873.9	74.1	229.5	243.3	131.9	173.0	126.5
Tajikistan	3.0	0.5	-	-	0.3	0.3	2.2	-
Turkmenistan	47.3	13.6	7.0	-	2.8	2.8	24.0	-
Ukraine	309.6	131.9	7.9	91.1	32.4	24.0	46.2	39.5
Uzbekistan	114.9	34.1	4.2	21.8	9.0	4.9	45.8	35.1
Former Soviet Union	2 426.5	1 207.3	111.1	413.0	329.7	200.6	365.4	219.0
Argentina	173.8	44.4	16.3	38.7	42.7	39.8	31.7	19.3
Bolivia	12.9	3.1	1.4	2.2	4.6	4.2	1.6	1.3
Brazil	364.6	41.2	27.9	108.3	149.5	134.6	37.6	16.3
Chile	73.0	24.6	3.9	14.0	25.6	17.3	5.0	3.2
Colombia	60.0	6.0	5.2	19.0	23.1	22.2	6.7	4.2
Costa Rica	6.6	0.6	0.1	1.1	4.3	4.3	0.5	0.1
Cuba	30.5	16.1	0.1	8.6	0.9	0.9	4.7	1.0
Dominican Republic	19.6	9.7	0.1	1.2	5.7	4.2	2.8	2.5
Ecuador	25.9	4.9	0.5	4.5	12.7	11.5	3.3	2.9
El Salvador	5.8	1.5	0.0	1.4	2.4	2.4	0.5	0.5
Guatemala	10.6	2.9	-	1.6	5.4	5.4	0.6	0.6
Haiti	2.3	0.2	-	0.5	1.3	0.7	0.2	0.2
Honduras	7.8	2.7	-	1.5	2.9	2.9	0.6	0.2
Jamaica	11.9	6.1	0.0	0.4	2.6	1.6	2.9	0.2
Netherlands Antilles	4.4	0.9	1.5	0.7	1.2	1.2	0.2	0.2
Nicaragua	4.1	1.6	0.1	0.6	1.5	1.3	0.4	0.1
Panama	6.5	1.8	-	1.2	3.1	1.4	0.4	0.3
Paraguay	3.7	-	-	0.1	3.4	3.3	0.2	0.2
Peru	34.9	7.3	2.0	9.3	13.2	12.9	3.1	1.8
Trinidad and Tobago	38.0	5.4	8.2	21.5	2.3	2.3	0.5	0.5
Uruguay	7.6	2.7	0.3	0.9	2.6	2.6	1.1	0.4
Venezuela	145.7	24.2	28.8	40.8	45.2	44.9	6.8	5.7
Other Latin America	17.9	8.1	0.0	1.4	5.4	4.8	3.0	1.3
Latin America	1 068.2	215.9	96.4	279.6	361.8	326.8	114.5	63.0
Bangladesh	46.4	20.1	0.2	11.4	6.6	5.1	8.2	5.2
Brunei Darussalam	7.5	2.6	1.5	2.0	1.1	1.1	0.2	0.1
Cambodia	4.6	1.7	-	0.2	1.1	1.1	1.6	1.2
Chinese Taipei	264.3	152.7	15.6	51.2	34.6	33.4	10.2	4.8
India	1 427.6	803.7	50.7	279.8	131.9	121.1	161.5	75.3
Indonesia	385.4	108.5	36.8	131.0	75.9	69.0	33.1	20.7
DPR of Korea	69.4	11.2	0.0	43.6	1.2	1.2	13.3	0.1
Malaysia	180.9	63.9	25.8	43.7	42.1	41.5	5.3	2.7
Mongolia	11.4	7.1	0.0	1.5	1.6	1.2	1.2	0.6
Myanmar	11.7	1.9	0.6	3.0	3.3	3.2	3.0	0.3
Nepal	3.3	0.0	-	1.1	0.9	0.9	1.3	0.8
Pakistan	133.8	41.3	1.9	43.3	31.5	30.6	15.7	12.3
Philippines	72.3	29.6	2.2	13.0	22.6	20.4	4.9	2.5
Singapore	44.3	22.2	9.5	5.3	7.2	7.2	0.2	0.2
Sri Lanka	12.2	3.9	0.2	1.3	5.9	5.2	1.0	0.3
Thailand	229.5	78.0	16.3	67.1	51.1	50.7	17.0	6.4
Vietnam	103.0	30.2	-	36.1	25.3	23.2	11.4	6.2
Other Asia	15.3	6.0	-	3.2	3.7	2.5	2.4	0.5
Asia	3 022.8	1 384.5	161.4	737.8	447.7	418.5	291.5	140.2
People's Rep. of China	6 508.2	3 108.1	268.6	2 167.9	452.6	330.1	511.0	285.1
Hong Kong, China	42.2	28.8	-	6.6	4.3	4.3	2.5	0.8
China	6 550.5	3 136.9	268.6	2 174.5	456.9	334.4	513.5	285.9

CO₂ emissions with electricity and heat allocated to consuming sectors * in 2008million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Other energy industries **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World ***	29 381.4	2 051.6	10 743.2	6 760.3	4 848.4	9 826.4	5 215.5
<i>Annex I Parties</i>	<i>13 903.8</i>	<i>1 000.0</i>	<i>3 921.8</i>	<i>3 575.2</i>	<i>2 977.0</i>	<i>5 406.7</i>	<i>2 911.9</i>
<i>Annex II Parties</i>	<i>10 951.8</i>	<i>699.7</i>	<i>2 887.7</i>	<i>3 071.9</i>	<i>2 656.4</i>	<i>4 292.5</i>	<i>2 177.1</i>
<i>North America</i>	<i>6 146.8</i>	<i>413.1</i>	<i>1 380.1</i>	<i>1 860.1</i>	<i>1 582.7</i>	<i>2 493.5</i>	<i>1 224.7</i>
<i>Europe</i>	<i>3 222.9</i>	<i>202.8</i>	<i>920.1</i>	<i>872.6</i>	<i>790.6</i>	<i>1 227.5</i>	<i>702.2</i>
<i>Pacific</i>	<i>1 582.0</i>	<i>80.4</i>	<i>538.3</i>	<i>332.4</i>	<i>283.1</i>	<i>630.8</i>	<i>270.5</i>
<i>Annex I EIT</i>	<i>2 688.5</i>	<i>277.4</i>	<i>942.7</i>	<i>454.5</i>	<i>281.1</i>	<i>1 013.9</i>	<i>669.1</i>
<i>Non-Annex I Parties</i>	<i>14 444.6</i>	<i>1 023.3</i>	<i>7 088.2</i>	<i>2 139.2</i>	<i>1 871.4</i>	<i>4 193.9</i>	<i>2 181.4</i>
 <i>Annex I Kyoto Parties</i>	 <i>7 980.1</i>	 <i>627.0</i>	 <i>2 525.2</i>	 <i>1 813.7</i>	 <i>1 477.3</i>	 <i>3 014.2</i>	 <i>1 695.6</i>
Non-OECD Total	15 718.8	1 243.6	7 406.5	2 289.8	1 849.0	4 778.9	2 680.4
OECD Total	12 629.6	834.1	3 465.5	3 441.2	2 999.4	4 888.8	2 489.0
Canada	550.9	71.6	139.8	162.9	126.9	176.6	75.3
Mexico	408.3	54.2	128.2	152.0	146.8	74.0	45.3
United States	5 595.9	336.8	1 220.0	1 696.2	1 455.9	2 343.0	1 160.0
OECD N. America	6 555.1	467.3	1 508.5	2 012.1	1 729.5	2 567.2	1 270.0
 Australia	 397.5	 33.9	 146.8	 82.6	 67.9	 134.3	 66.9
Japan	1 151.1	48.3	393.0	235.3	202.6	474.6	196.7
Korea	501.3	33.3	216.3	85.3	78.8	166.3	68.9
New Zealand	33.3	1.6	9.6	14.0	12.7	8.1	3.4
OECD Pacific	2 083.3	113.3	759.3	417.4	361.8	793.3	336.3
 Austria	 69.3	 8.7	 18.4	 22.7	 20.8	 19.6	 12.2
Belgium	111.0	6.6	38.1	27.5	26.6	38.8	23.6
Czech Republic	116.8	7.9	43.1	19.4	16.9	46.4	25.1
Denmark	48.4	2.8	8.8	13.8	12.8	22.9	12.6
Finland	56.6	2.9	24.1	12.8	11.5	16.7	8.8
France	368.2	21.7	84.7	126.0	118.7	135.8	74.2
Germany	803.9	34.5	259.9	156.7	139.9	352.8	215.6
Greece	93.4	5.2	21.3	22.2	19.0	44.7	22.9
Hungary	53.0	3.3	11.9	13.3	12.6	24.5	14.8
Iceland	2.2	0.0	0.7	0.9	0.8	0.6	0.0
Ireland	43.8	0.6	9.3	13.4	13.0	20.5	11.6
Italy	430.1	28.6	137.4	121.3	109.6	142.8	75.9
Luxembourg	10.4	-	2.1	6.5	6.4	1.8	1.5
Netherlands	177.9	13.8	60.7	35.6	33.8	67.7	27.8
Norway	37.6	11.8	8.3	14.0	10.4	3.4	0.7
Poland	299	24	84	47	43	144	88
Portugal	52	2	16	19	18	15	7
Slovak Republic	36	5	13	7	6	11	5
Spain	318	21	94	110	95	93	46
Sweden	46	3	12	23	22	7	3
Switzerland	44	1	7	17	17	18	11
Turkey	264	10	89	46	40	119	63
United Kingdom	511	38	124	129	115	220	140
OECD Europe	3 991	248	1 165	1 006	908	1 573	895
<i>European Union - 27</i>	<i>3 850</i>	<i>242</i>	<i>1 130</i>	<i>971</i>	<i>880</i>	<i>1 506</i>	<i>861</i>

* CO₂ emissions from electricity and heat generation have been allocated to final consuming sectors in proportion to the electricity and heat consumed. The detailed unallocated emissions are shown in the table on pages II.25-II.27.

** Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

*** World includes international bunkers in the transport sector.

CO₂ emissions with electricity and heat allocated to consuming sectors in 2008million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Other energy industries	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	15 718.8	1 243.6	7 406.5	2 289.8	1 849.0	4 778.9	2 680.4
Algeria	88.1	11.0	19.5	20.0	17.7	37.6	37.6
Angola	10.6	0.2	2.6	5.3	3.5	2.4	1.0
Benin	3.3	-	0.2	2.0	2.0	1.1	1.1
Botswana	4.5	-	1.7	2.0	1.9	0.8	0.3
Cameroon	4.3	0.2	1.0	2.2	2.1	0.9	0.7
Congo	1.5	-	0.1	1.3	1.1	0.1	0.1
Dem. Rep. of Congo	2.8	-	1.0	0.6	0.6	1.2	0.3
Côte d'Ivoire	6.5	0.2	1.3	1.6	1.3	3.4	1.4
Egypt	174.0	14.7	60.9	38.1	35.0	60.4	37.7
Eritrea	0.5	-	0.1	0.1	0.1	0.3	0.1
Ethiopia	6.8	-	1.8	3.9	3.9	1.1	1.0
Gabon	3.0	0.1	1.4	0.6	0.6	0.9	0.6
Ghana	7.3	0.1	2.0	3.6	3.4	1.6	1.0
Kenya	8.6	0.5	2.7	3.2	3.1	2.2	1.4
Libyan Arab Jamahiriya	44.8	2.5	8.6	10.2	10.2	23.5	9.8
Morocco	42.1	1.1	12.7	11.5	10.8	16.8	8.8
Mozambique	1.9	0.0	0.4	1.4	1.2	0.2	0.1
Namibia	3.9	-	0.4	1.9	1.7	1.6	-
Nigeria	52.4	10.6	7.0	25.4	25.3	9.3	7.2
Senegal	5.1	0.0	1.2	2.3	2.1	1.5	0.9
South Africa	337.4	16.2	163.1	49.5	42.3	108.6	56.4
Sudan	12.1	0.5	1.6	6.7	6.7	3.2	2.2
United Rep. of Tanzania	5.8	0.0	1.3	3.3	3.3	1.2	1.1
Togo	1.1	-	0.1	0.9	0.9	0.2	0.2
Tunisia	20.7	0.2	7.3	4.9	4.7	8.3	3.9
Zambia	1.6	0.0	0.8	0.5	0.4	0.2	0.0
Zimbabwe	8.8	0.0	3.6	1.1	1.0	4.0	1.6
Other Africa	30.4	0.2	6.8	12.3	10.7	11.1	4.9
Africa	889.9	55.5	308.3	215.6	197.4	310.7	190.0
Bahrain	22.3	4.3	7.9	3.1	3.0	7.0	4.4
Islamic Rep. of Iran	505.0	23.2	154.2	110.4	110.2	217.2	139.7
Iraq	97.4	4.8	23.4	30.2	30.2	38.9	9.0
Israel	63.1	2.9	12.0	10.3	10.3	37.9	15.2
Jordan	18.4	0.8	4.7	4.6	4.5	8.4	4.6
Kuwait	69.5	20.2	10.8	10.7	10.7	27.7	18.5
Lebanon	15.2	-	3.7	4.3	4.3	7.2	4.5
Oman	34.9	6.3	9.6	5.3	5.3	13.7	7.5
Qatar	53.9	16.6	20.0	8.6	8.6	8.7	3.0
Saudi Arabia	389.2	55.6	107.1	96.0	94.0	130.5	86.2
Syrian Arab Republic	54.4	2.0	21.3	12.1	11.7	19.0	16.8
United Arab Emirates	146.9	2.0	52.4	25.2	25.2	67.3	34.4
Yemen	21.9	3.4	2.5	5.9	5.9	10.2	4.8
Middle East	1 492.3	142.2	432.8	326.8	324.2	590.4	345.3
Albania	3.9	0.2	0.6	2.3	2.0	0.8	0.3
Bosnia and Herzegovina	19.5	0.1	4.9	2.8	2.7	11.7	6.3
Bulgaria	48.8	4.1	18.6	8.5	7.5	17.5	10.7
Croatia	20.9	1.7	5.7	6.2	5.7	7.3	4.3
Cyprus	7.6	0.0	1.7	2.0	2.0	3.9	1.7
Gibraltar	0.5	-	0.1	0.3	0.3	0.1	-
FYR of Macedonia	9.0	0.3	3.4	1.2	1.2	4.1	2.7
Malta	2.6	-	0.6	0.5	0.5	1.4	0.7
Romania	89.9	10.8	34.8	15.7	13.6	28.6	19.5
Serbia	49.2	0.8	17.3	6.7	5.6	24.5	17.6
Slovenia	16.7	0.1	5.4	6.0	5.9	5.3	3.0
Non-OECD Europe	268.6	18.6	93.7	52.5	47.1	103.8	65.8

CO₂ emissions with electricity and heat allocated to consuming sectors in 2008million tonnes of CO₂

	Total CO ₂ emissions from fuel combustion	Other energy industries	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Armenia	5.3	-	2.3	0.9	0.8	2.1	0.4
Azerbaijan	29.3	3.4	6.2	5.4	4.8	14.3	10.7
Belarus	64.2	3.4	25.5	7.2	4.4	28.1	18.0
Estonia	17.6	0.7	4.4	2.4	2.2	10.2	5.8
Georgia	4.7	0.3	0.8	1.8	1.7	1.8	1.0
Kazakhstan	201.6	14.8	87.7	16.1	12.5	83.0	17.1
Kyrgyzstan	5.9	0.0	2.0	1.4	1.4	2.4	0.3
Latvia	7.9	0.0	1.4	3.6	3.3	2.9	1.5
Lithuania	14.2	2.2	3.7	5.0	4.6	3.3	1.9
Republic of Moldova	7.1	0.2	1.4	1.1	0.9	4.4	2.6
Russian Federation	1 593.8	193.9	536.0	274.0	131.9	589.9	393.0
Tajikistan	3.0	0.0	0.2	0.3	0.3	2.5	0.1
Turkmenistan	47.3	8.7	3.5	3.0	2.8	32.1	2.0
Ukraine	309.6	14.7	155.7	37.9	24.0	101.3	81.5
Uzbekistan	114.9	4.9	29.5	9.6	4.9	70.9	38.7
Former Soviet Union	2 426.5	251.6	853.8	369.7	200.6	951.4	579.0
Argentina	173.8	16.3	58.5	43.0	39.8	56.1	32.3
Bolivia	12.9	1.4	3.1	4.6	4.2	3.7	2.4
Brazil	364.6	27.9	128.2	149.7	134.6	58.8	25.9
Chile	73.0	4.2	30.5	25.8	17.3	12.5	7.2
Colombia	60.0	5.2	20.9	23.1	22.2	10.8	6.8
Costa Rica	6.6	0.1	1.3	4.3	4.3	0.9	0.4
Cuba	30.5	0.1	12.8	1.2	0.9	16.3	8.0
Dominican Republic	19.6	0.1	5.2	5.7	4.2	8.6	5.7
Ecuador	25.9	0.5	6.0	12.7	11.5	6.7	4.6
El Salvador	5.8	0.0	1.9	2.4	2.4	1.4	1.0
Guatemala	10.6	-	2.8	5.4	5.4	2.4	1.6
Haiti	2.3	-	0.6	1.3	0.7	0.4	0.3
Honduras	7.8	-	2.3	2.9	2.9	2.6	1.3
Jamaica	11.9	0.0	5.0	2.6	1.6	4.3	1.1
Netherlands Antilles	4.4	1.5	1.2	1.2	1.2	0.6	0.2
Nicaragua	4.1	0.1	1.1	1.5	1.3	1.6	0.6
Panama	6.5	-	1.4	3.1	1.4	2.0	0.8
Paraguay	3.7	-	0.1	3.4	3.3	0.2	0.2
Peru	34.9	2.0	13.3	13.2	12.9	6.4	3.5
Trinidad and Tobago	38.0	8.2	24.7	2.3	2.3	2.8	2.2
Uruguay	7.6	0.3	1.7	2.6	2.6	3.0	1.4
Venezuela	145.7	29.4	50.6	45.3	44.9	20.5	13.2
Other Latin America	17.9	0.0	2.4	5.4	4.8	10.2	2.2
Latin America	1 068.2	97.1	375.9	362.6	326.8	232.7	120.0
Bangladesh	46.4	0.2	22.7	6.6	5.1	17.0	11.8
Brunei Darussalam	7.5	1.5	2.5	1.1	1.1	2.4	1.1
Cambodia	4.6	-	0.5	1.1	1.1	2.9	2.0
Chinese Taipei	264.3	18.6	134.6	35.4	33.4	75.7	35.2
India	1 427.6	50.7	652.8	147.4	121.1	576.7	241.7
Indonesia	385.4	36.8	171.4	75.9	69.0	101.3	62.9
DPR of Korea	69.4	0.0	49.2	1.2	1.2	18.9	0.1
Malaysia	180.9	25.8	73.2	42.3	41.5	39.6	16.0
Mongolia	11.4	0.0	4.2	1.6	1.2	5.5	3.6
Myanmar	11.7	0.6	3.8	3.3	3.2	4.1	1.0
Nepal	3.3	-	1.1	0.9	0.9	1.3	0.8
Pakistan	133.8	1.9	54.7	31.5	30.6	45.7	31.3
Philippines	72.3	2.2	23.2	22.7	20.4	24.2	12.5
Singapore	44.3	10.9	12.9	7.4	7.2	13.1	4.1
Sri Lanka	12.2	0.2	2.7	5.9	5.2	3.4	1.9
Thailand	229.5	16.3	100.1	51.2	50.7	61.8	22.9
Vietnam	103.0	-	51.7	25.5	23.2	25.8	17.8
Other Asia	15.3	0.4	5.8	3.7	2.5	5.4	1.8
Asia	3 022.8	168.5	1 361.6	460.8	418.5	1 032.0	486.7
People's Rep. of China	6 508.2	457.7	4 137.6	477.9	330.1	1 435.0	804.0
Hong Kong, China	42.2	-	9.0	4.3	4.3	28.9	8.1
China	6 550.5	457.4	4 143.4	482.2	334.4	1 467.5	812.5

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	231 678	259 340	302 664	324 584	367 478	386 902	419 708	478 570	491 160	504 221	513 611	39.8%
<i>Annex I Parties</i>	..	..	..	..	233 637	229 407	241 400	250 960	251 053	252 266	249 573	6.8%
<i>Annex II Parties</i>	130 359	138 423	153 296	154 085	167 897	180 352	194 893	201 468	200 251	201 148	197 998	17.9%
North America	72 382	76 178	83 622	82 358	88 914	96 218	105 707	108 489	107 402	109 219	106 784	20.1%
Europe	44 325	46 579	51 959	53 015	56 448	58 864	62 234	65 497	65 267	64 444	64 298	13.9%
Pacific	13 651	15 666	17 715	18 712	22 535	25 270	26 952	27 483	27 582	27 485	26 916	19.4%
<i>Annex I EIT</i>	..	..	..	..	63 531	46 478	43 311	45 959	46 907	46 931	47 451	-25.3%
<i>Non-Annex I Parties</i>	..	..	..	..	125 513	148 042	167 130	214 785	226 627	237 904	250 021	99.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	149 344	139 244	141 991	149 216	149 803	149 078	148 656	-0.5%
Intl. marine bunkers	4 521	4 313	4 517	3 841	4 680	5 386	6 174	6 872	7 320	7 743	7 593	62.2%
Intl. aviation bunkers	2 388	2 451	2 844	3 166	3 648	4 066	5 003	5 952	6 160	6 307	6 423	76.1%
Non-OECD Total	84 182	101 728	125 697	145 663	171 619	175 319	189 400	237 134	249 488	260 310	272 568	58.8%
OECD Total	140 587	150 848	169 605	171 915	187 531	202 130	219 131	228 612	228 191	229 861	227 026	21.1%
Canada	5 918	6 948	8 064	8 080	8 737	9 668	10 527	11 402	11 247	11 392	11 169	27.8%
Mexico	1 800	2 477	3 982	4 547	5 077	5 436	6 062	7 123	7 188	7 381	7 562	48.9%
United States	66 464	69 231	75 558	74 278	80 177	86 550	95 180	97 086	96 156	97 827	95 615	19.3%
OECD N. America	74 182	78 655	87 604	86 905	93 991	101 654	111 769	115 612	114 590	116 600	114 346	21.7%
Australia	2 161	2 528	2 914	3 049	3 610	3 875	4 526	5 007	5 122	5 211	5 448	50.9%
Japan	11 201	12 772	14 424	15 194	18 393	20 777	21 727	21 796	21 765	21 576	20 760	12.9%
Korea	711	1 024	1 725	2 241	3 897	6 061	7 773	8 797	8 940	9 301	9 502	143.8%
New Zealand	289	366	376	469	532	618	699	680	695	699	709	33.4%
OECD Pacific	14 362	16 690	19 440	20 953	26 432	31 331	34 725	36 279	36 521	36 786	36 418	37.8%
Austria	788	842	969	967	1 038	1 118	1 194	1 423	1 411	1 392	1 392	34.2%
Belgium	1 660	1 772	1 958	1 846	2 022	2 251	2 450	2 457	2 433	2 388	2 453	21.3%
Czech Republic	1 900	1 828	1 966	2 061	2 041	1 712	1 685	1 880	1 919	1 917	1 869	-8.5%
Denmark	775	732	801	808	726	814	778	787	846	823	796	9.6%
Finland	761	825	1 030	1 082	1 188	1 211	1 344	1 427	1 554	1 534	1 476	24.2%
France	6 639	6 907	8 029	8 533	9 374	9 909	10 545	11 318	11 176	11 049	11 158	19.0%
Germany	12 772	13 126	14 954	14 956	14 713	14 112	14 122	14 180	14 287	13 938	14 038	-4.6%
Greece	364	492	627	735	898	949	1 134	1 266	1 265	1 265	1 274	41.9%
Hungary	797	959	1 187	1 246	1 200	1 083	1 047	1 155	1 144	1 119	1 108	-7.7%
Iceland	38	46	63	74	87	94	130	146	174	205	220	151.6%
Ireland	281	278	345	361	418	445	574	602	614	628	627	50.0%
Italy	4 413	4 889	5 478	5 414	6 136	6 662	7 181	7 698	7 624	7 498	7 370	20.1%
Luxembourg	170	158	149	128	143	132	139	179	180	177	172	20.7%
Netherlands	2 130	2 471	2 695	2 539	2 750	2 960	3 066	3 298	3 215	3 359	3 336	21.3%
Norway	557	611	767	836	879	981	1 083	1 120	1 134	1 149	1 242	41.3%
Poland	3 606	4 314	5 301	5 221	4 317	4 165	3 731	3 868	4 074	4 061	4 098	-5.1%
Portugal	263	322	418	459	701	846	1 033	1 107	1 032	1 049	1 011	44.3%
Slovak Republic	597	702	831	868	893	744	743	788	780	747	766	-14.2%
Spain	1 784	2 408	2 834	2 970	3 772	4 221	5 106	5 938	5 923	6 024	5 811	54.1%
Sweden	1 509	1 634	1 695	1 977	1 976	2 107	1 991	2 158	2 101	2 095	2 076	5.1%
Switzerland	686	719	839	924	1 006	997	1 031	1 082	1 129	1 077	1 118	11.1%
Turkey	818	1 120	1 317	1 646	2 209	2 577	3 197	3 533	3 895	4 187	4 124	86.7%
United Kingdom	8 737	8 347	8 308	8 406	8 621	9 055	9 334	9 308	9 167	8 795	8 727	1.2%
OECD Europe	52 043	55 503	62 561	64 057	67 107	69 145	72 636	76 721	77 080	76 475	76 263	13.6%
<i>European Union - 27</i>	..	..	..	..	68 457	68 528	70 530	74 472	74 465	73 607	73 300	7.1%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	84 182	101 728	125 697	145 663	171 619	175 319	189 400	237 134	249 488	260 310	272 568	58.8%
Algeria	145	231	469	743	929	1 009	1 131	1 351	1 451	1 541	1 552	67.0%
Angola	161	173	191	209	246	268	311	380	414	451	459	86.5%
Benin	46	52	57	65	70	77	83	107	117	121	126	80.9%
Botswana	..	..	..	37	53	63	77	79	79	84	89	67.9%
Cameroon	113	127	153	187	208	230	263	293	281	305	297	42.6%
Congo	21	24	27	33	33	33	36	51	50	52	57	71.6%
Dem. Rep. of Congo	280	313	354	417	494	548	698	836	867	899	932	88.6%
Côte d'Ivoire	103	124	150	155	181	213	282	403	399	428	430	137.8%
Egypt	325	411	635	1 077	1 332	1 478	1 891	2 547	2 672	2 816	2 960	122.2%
Eritrea	..	..	..	..	..	42	30	32	29	30	29	..
Ethiopia	360	395	454	518	622	687	780	899	927	1 285	1 327	113.3%
Gabon	45	54	58	57	49	57	61	73	75	78	87	75.5%
Ghana	125	153	168	182	222	271	324	357	395	398	396	78.8%
Kenya	227	259	316	372	458	522	585	685	715	732	755	64.7%
Libyan Arab Jamahiriya	66	153	288	418	474	661	694	735	738	746	763	60.8%
Morocco	102	143	204	234	291	360	429	547	558	601	627	115.8%
Mozambique	289	280	281	267	248	263	300	355	366	385	390	57.3%
Namibia	..	..	..	..	..	38	43	59	62	65	73	..
Nigeria	1 510	1 747	2 196	2 572	2 955	3 350	3 806	4 418	4 404	4 410	4 654	57.5%
Senegal	52	58	65	65	71	78	100	117	115	118	120	69.5%
South Africa	1 890	2 251	2 727	3 619	3 804	4 394	4 619	5 271	5 394	5 624	5 631	48.0%
Sudan	294	313	350	396	445	502	566	651	649	625	644	44.6%
United Rep. of Tanzania	317	321	336	367	407	461	561	718	747	768	794	94.8%
Togo	30	33	37	41	53	66	88	99	99	103	107	102.9%
Tunisia	69	91	137	174	207	243	306	345	357	370	384	85.6%
Zambia	147	163	188	206	226	244	261	295	301	300	308	36.2%
Zimbabwe	228	248	272	310	389	412	414	406	404	401	398	2.2%
Other Africa	1 102	1 201	1 375	1 537	1 755	1 974	2 291	2 701	2 777	2 881	3 054	74.0%
Africa	8 048	9 318	11 489	14 257	16 224	18 542	21 032	24 810	25 441	26 617	27 442	69.1%
Bahrain	59	89	118	174	182	206	246	314	346	367	386	112.1%
Islamic Rep. of Iran	700	1 129	1 608	2 268	2 861	3 934	4 982	6 888	7 510	8 130	8 460	195.7%
Iraq	185	237	441	661	757	1 087	1 063	1 386	1 435	1 362	1 423	88.0%
Israel	240	294	328	317	480	650	764	847	874	908	921	91.8%
Jordan	20	31	63	109	136	180	206	279	287	301	296	116.6%
Kuwait	244	242	621	598	328	672	838	1 153	1 034	1 055	1 101	236.1%
Lebanon	71	83	98	112	94	181	206	227	195	167	219	133.4%
Oman	9	10	48	88	162	256	339	453	576	615	688	323.8%
Qatar	39	87	146	254	288	364	480	742	830	993	1 010	250.2%
Saudi Arabia	316	385	1 323	1 957	2 472	3 629	4 384	5 718	5 992	6 201	6 766	173.7%
Syrian Arab Republic	110	145	214	362	477	588	730	733	777	822	825	73.1%
United Arab Emirates	42	81	300	559	832	1 141	1 411	1 805	1 900	2 162	2 447	194.0%
Yemen	31	29	53	73	105	143	198	275	287	302	313	197.5%
Middle East	2 068	2 843	5 358	7 531	9 175	13 029	15 847	20 821	22 044	23 386	24 855	170.9%
Albania	71	82	128	113	111	55	74	97	90	91	87	-21.5%
Bosnia and Herzegovina *	..	..	..	..	293	64	182	211	226	234	251	-14.5%
Bulgaria	797	973	1 189	1 283	1 196	967	781	833	856	842	828	-30.8%
Croatia *	..	..	..	..	377	295	326	373	374	390	380	0.8%
Cyprus	25	24	36	39	57	73	89	93	97	102	108	90.1%
Gibraltar	1	1	2	2	2	4	5	6	6	6	7	171.4%
FYR of Macedonia *	..	..	..	..	104	105	112	121	122	127	130	25.3%
Malta	9	9	13	14	29	30	28	36	34	36	34	17.8%
Romania	1 764	2 169	2 731	2 719	2 606	1 938	1 515	1 603	1 668	1 646	1 649	-36.7%
Serbia *	..	..	..	..	810	569	557	629	658	662	671	-17.1%
Slovenia *	..	..	..	..	239	254	269	305	307	306	324	35.5%
Former Yugoslavia *	918	1 068	1 411	1 722	..	..	..	..	..	..	..	..
Non-OECD Europe	3 584	4 326	5 510	5 892	5 826	4 354	3 940	4 308	4 438	4 444	4 469	-23.3%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

Total primary energy supply

petajoules

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	322	68	84	105	107	119	125	-61.1%
Azerbaijan	..	..	..	..	1 082	534	479	559	568	506	560	-48.3%
Belarus	..	..	..	..	1 907	1 036	1 033	1 125	1 199	1 175	1 178	-38.2%
Estonia	..	..	..	..	401	211	197	216	211	235	226	-43.6%
Georgia	..	..	..	..	507	156	120	119	127	140	125	-75.3%
Kazakhstan	..	..	..	..	3 046	2 176	1 688	2 352	2 657	2 783	2 969	-2.5%
Kyrgyzstan	..	..	..	..	313	100	101	111	112	129	120	-61.8%
Latvia	..	..	..	..	329	192	156	185	190	196	188	-42.9%
Lithuania	..	..	..	..	675	366	299	360	355	387	384	-43.0%
Republic of Moldova	..	..	..	..	413	184	119	148	141	140	132	-68.1%
Russian Federation	..	..	..	..	36 810	26 655	25 927	27 286	28 080	28 160	28 753	-21.9%
Tajikistan	..	..	..	..	222	93	90	98	102	109	104	-53.0%
Turkmenistan	..	..	..	..	822	582	607	692	697	763	788	-4.2%
Ukraine	..	..	..	..	10 541	6 859	5 602	5 982	5 750	5 750	5 700	-45.9%
Uzbekistan	..	..	..	..	1 941	1 782	2 124	1 966	2 045	2 039	2 114	8.9%
Former Soviet Union *	32 169	39 351	46 453	52 248	59 330	40 994	38 626	41 305	42 341	42 630	43 467	-26.7%
Argentina	1 409	1 505	1 751	1 731	1 929	2 258	2 552	2 804	3 056	3 078	3 197	65.7%
Bolivia	43	63	102	109	116	166	207	184	189	239	238	105.3%
Brazil	2 921	3 815	4 767	5 416	5 872	6 746	7 920	9 020	9 335	9 855	10 405	77.2%
Chile	364	320	397	401	580	790	1 099	1 241	1 277	1 285	1 317	127.2%
Colombia	577	645	776	876	1 014	1 192	1 121	1 172	1 240	1 233	1 288	27.0%
Costa Rica	47	55	64	70	85	98	126	170	189	209	205	141.8%
Cuba	457	546	620	602	691	429	472	406	429	410	505	-26.9%
Dominican Republic	98	129	144	153	172	247	324	322	328	335	342	99.1%
Ecuador	96	137	211	242	251	299	336	451	459	477	433	72.5%
El Salvador	73	95	105	110	103	141	166	188	194	208	204	97.8%
Guatemala	115	140	159	158	186	224	297	332	341	347	338	82.0%
Haiti	63	72	87	79	65	71	84	108	111	116	116	77.7%
Honduras	58	64	78	84	100	118	125	168	169	199	194	94.3%
Jamaica	84	112	95	72	117	135	157	155	181	206	184	57.3%
Netherlands Antilles	229	161	164	75	61	55	83	81	80	90	91	48.3%
Nicaragua	52	62	64	81	88	98	114	139	144	145	147	68.2%
Panama	70	71	59	65	62	83	108	109	121	118	121	94.4%
Paraguay	57	62	87	95	129	164	161	166	169	176	183	41.9%
Peru	382	434	471	443	408	459	510	564	547	589	616	51.1%
Trinidad and Tobago	110	96	160	212	250	264	410	680	834	799	813	225.1%
Uruguay	101	102	111	84	94	108	129	124	134	133	175	85.7%
Venezuela	818	1 045	1 482	1 651	1 824	2 160	2 362	2 490	2 547	2 663	2 684	47.1%
Other Latin America	198	251	251	163	204	218	244	269	276	281	287	40.5%
Latin America	8 424	9 982	12 206	12 972	14 399	16 522	19 107	21 346	22 349	23 192	24 082	67.2%
Bangladesh	238	282	352	417	533	666	779	1 000	1 063	1 109	1 170	119.4%
Brunei Darussalam	7	31	57	75	74	97	103	106	136	139	152	105.9%
Cambodia	..	..	..	..	..	141	167	200	208	215	219	..
Chinese Taipei	422	602	1 171	1 432	2 020	2 672	3 563	4 295	4 389	4 600	4 417	118.7%
India	6 541	7 429	8 688	10 765	13 352	16 177	19 236	22 477	23 602	24 916	25 999	94.7%
Indonesia	1 511	1 755	2 397	2 841	4 351	5 596	6 508	7 513	7 593	7 981	8 318	91.2%
DPR of Korea	813	932	1 271	1 507	1 391	920	828	898	907	769	848	-39.0%
Malaysia	247	300	498	650	921	1 554	1 979	2 599	2 649	2 895	3 046	230.9%
Mongolia	..	..	..	131	143	113	99	109	122	130	132	-7.8%
Myanmar	330	350	393	459	446	493	523	670	649	651	656	47.0%
Nepal	153	169	191	213	242	281	339	382	391	401	410	69.3%
Pakistan	713	851	1 043	1 356	1 799	2 251	2 666	3 202	3 334	3 530	3 468	92.8%
Philippines	626	738	916	959	1 151	1 446	1 715	1 661	1 649	1 674	1 719	49.4%
Singapore	114	155	215	283	480	789	756	1 000	984	820	776	61.7%
Sri Lanka	159	172	190	209	231	249	349	377	380	388	374	62.0%
Thailand	573	726	921	1 056	1 760	2 614	3 024	4 071	4 179	4 351	4 488	155.1%
Vietnam	730	776	820	907	1 018	1 258	1 552	2 143	2 207	2 356	2 488	144.3%
Other Asia	185	222	309	250	255	290	300	358	359	352	370	45.0%
Asia	13 363	15 490	19 430	23 509	30 167	37 607	44 487	53 061	54 802	57 277	59 050	95.7%
People's Rep. of China	16 400	20 266	25 057	28 973	36 130	43 823	45 801	70 953	77 514	82 163	88 611	145.3%
Hong Kong, China	126	152	194	280	366	446	561	530	558	600	592	61.6%
China	16 526	20 418	25 251	29 253	36 496	44 269	46 362	71 484	78 072	82 764	89 203	144.4%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	5 533.5	6 194.2	7 229.0	7 752.6	8 777.1	9 241.0	10 024.5	11 430.4	11 731.2	12 043.1	12 267.4	39.8%
<i>Annex I Parties</i>	..	..	..	..	5 580.3	5 479.3	5 765.8	5 994.1	5 996.3	6 025.3	5 961.0	6.8%
<i>Annex II Parties</i>	3 113.6	3 306.2	3 661.4	3 680.2	4 010.1	4 307.6	4 654.9	4 812.0	4 782.9	4 804.3	4 729.1	17.9%
<i>North America</i>	1 728.8	1 819.5	1 997.3	1 967.1	2 123.7	2 298.1	2 524.8	2 591.2	2 565.3	2 608.6	2 550.5	20.1%
<i>Europe</i>	1 058.7	1 112.5	1 241.0	1 266.2	1 348.2	1 405.9	1 486.4	1 564.4	1 558.9	1 539.2	1 535.7	13.9%
<i>Pacific</i>	326.1	374.2	423.1	446.9	538.2	603.6	643.7	656.4	658.8	656.5	642.9	19.4%
<i>Annex I EIT</i>	..	..	..	..	1 517.4	1 110.1	1 034.5	1 097.7	1 120.3	1 120.9	1 133.3	-25.3%
<i>Non-Annex I Parties</i>	..	..	..	..	2 997.8	3 535.9	3 991.8	5 130.1	5 412.9	5 682.2	5 971.7	99.2%
<i>Annex I Kyoto Parties</i>	..	..	..	..	3 567.0	3 325.8	3 391.4	3 564.0	3 578.0	3 560.7	3 550.6	-0.5%
Intl. marine bunkers	108.0	103.0	107.9	91.7	111.8	128.7	147.5	164.1	174.8	185.0	181.4	62.2%
Intl. aviation bunkers	57.0	58.5	67.9	75.6	87.1	97.1	119.5	142.2	147.1	150.6	153.4	76.1%
Non-OECD Total	2 010.6	2 429.7	3 002.2	3 479.1	4 099.0	4 187.4	4 523.7	5 663.8	5 958.9	6 217.4	6 510.2	58.8%
OECD Total	3 357.9	3 603.0	4 051.0	4 106.1	4 479.1	4 827.8	5 233.9	5 460.3	5 450.3	5 490.1	5 422.4	21.1%
Canada	141.3	165.9	192.6	193.0	208.7	230.9	251.4	272.3	268.6	272.1	266.8	27.8%
Mexico	43.0	59.2	95.1	108.6	121.3	129.8	144.8	170.1	171.7	176.3	180.6	48.9%
United States	1 587.5	1 653.5	1 804.7	1 774.1	1 915.0	2 067.2	2 273.3	2 318.9	2 296.6	2 336.5	2 283.7	19.3%
OECD N. America	1 771.8	1 878.6	2 092.4	2 075.7	2 244.9	2 428.0	2 669.6	2 761.3	2 736.9	2 784.9	2 731.1	21.7%
Australia	51.6	60.4	69.6	72.8	86.2	92.6	108.1	119.6	122.3	124.5	130.1	50.9%
Japan	267.5	305.1	344.5	362.9	439.3	496.3	518.9	520.6	519.8	515.3	495.8	12.9%
Korea	17.0	24.5	41.2	53.5	93.1	144.8	185.7	210.1	213.5	222.1	226.9	143.8%
New Zealand	6.9	8.8	9.0	11.2	12.7	14.8	16.7	16.2	16.6	16.7	16.9	33.4%
OECD Pacific	343.0	398.6	464.3	500.5	631.3	748.3	829.4	866.5	872.3	878.6	869.8	37.8%
Austria	18.8	20.1	23.2	23.1	24.8	26.7	28.5	34.0	33.7	33.3	33.2	34.2%
Belgium	39.7	42.3	46.8	44.1	48.3	53.8	58.5	58.7	58.1	57.0	58.6	21.3%
Czech Republic	45.4	43.7	46.9	49.2	48.8	40.9	40.3	44.9	45.8	45.8	44.6	-8.5%
Denmark	18.5	17.5	19.1	19.3	17.3	19.4	18.6	18.8	20.2	19.7	19.0	9.6%
Finland	18.2	19.7	24.6	25.8	28.4	28.9	32.1	34.1	37.1	36.6	35.3	24.2%
France	158.6	165.0	191.8	203.8	223.9	236.7	251.9	270.3	266.9	263.9	266.5	19.0%
Germany	305.0	313.5	357.2	357.2	351.4	337.1	337.3	338.7	341.2	332.9	335.3	-4.6%
Greece	8.7	11.7	15.0	17.6	21.4	22.7	27.1	30.2	30.2	30.2	30.4	41.9%
Hungary	19.0	22.9	28.4	29.8	28.7	25.9	25.0	27.6	27.3	26.7	26.5	-7.7%
Iceland	0.9	1.1	1.5	1.8	2.1	2.3	3.1	3.5	4.2	4.9	5.3	151.6%
Ireland	6.7	6.6	8.2	8.6	10.0	10.6	13.7	14.4	14.7	15.0	15.0	50.0%
Italy	105.4	116.8	130.8	129.3	146.6	159.1	171.5	183.9	182.1	179.1	176.0	20.1%
Luxembourg	4.1	3.8	3.6	3.1	3.4	3.2	3.3	4.3	4.3	4.2	4.1	20.7%
Netherlands	50.9	59.0	64.4	60.6	65.7	70.7	73.2	78.8	76.8	80.2	79.7	21.3%
Norway	13.3	14.6	18.3	20.0	21.0	23.4	25.9	26.7	27.1	27.5	29.7	41.3%
Poland	86.1	103.0	126.6	124.7	103.1	99.5	89.1	92.4	97.3	97.0	97.9	-5.1%
Portugal	6.3	7.7	10.0	11.0	16.7	20.2	24.7	26.4	24.7	25.1	24.2	44.3%
Slovak Republic	14.3	16.8	19.8	20.7	21.3	17.8	17.7	18.8	18.6	17.8	18.3	-14.2%
Spain	42.6	57.5	67.7	70.9	90.1	100.8	121.9	141.8	141.5	143.9	138.8	54.1%
Sweden	36.0	39.0	40.5	47.2	47.2	50.3	47.6	51.5	50.2	50.0	49.6	5.1%
Switzerland	16.4	17.2	20.0	22.1	24.0	23.8	24.6	25.8	27.0	25.7	26.7	11.1%
Turkey	19.5	26.8	31.4	39.3	52.8	61.5	76.3	84.4	93.0	100.0	98.5	86.7%
United Kingdom	208.7	199.4	198.4	200.8	205.9	216.3	222.9	222.3	218.9	210.1	208.5	1.2%
OECD Europe	1 243.0	1 325.7	1 494.2	1 530.0	1 602.8	1 651.5	1 734.9	1 832.4	1 841.0	1 826.6	1 821.5	13.6%
<i>European Union - 27</i>	..	..	..	..	1 635.1	1 636.8	1 684.6	1 778.7	1 778.6	1 758.1	1 750.7	7.1%

* Total world includes non-OECD total, OECD total as well as international marine bunkers and international aviation bunkers.

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	2 010.6	2 429.7	3 002.2	3 479.1	4 099.0	4 187.4	4 523.7	5 663.8	5 958.9	6 217.4	6 510.2	58.8%
Algeria	3.5	5.5	11.2	17.7	22.2	24.1	27.0	32.3	34.7	36.8	37.1	67.0%
Angola	3.9	4.1	4.6	5.0	5.9	6.4	7.4	9.1	9.9	10.8	11.0	86.5%
Benin	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.6	2.8	2.9	3.0	80.9%
Botswana	..	..	..	0.9	1.3	1.5	1.8	1.9	1.9	2.0	2.1	67.9%
Cameroon	2.7	3.0	3.7	4.5	5.0	5.5	6.3	7.0	6.7	7.3	7.1	42.6%
Congo	0.5	0.6	0.7	0.8	0.8	0.8	0.8	1.2	1.2	1.2	1.4	71.6%
Dem. Rep. of Congo	6.7	7.5	8.5	10.0	11.8	13.1	16.7	20.0	20.7	21.5	22.2	88.6%
Côte d'Ivoire	2.5	3.0	3.6	3.7	4.3	5.1	6.7	9.6	9.5	10.2	10.3	137.8%
Egypt	7.8	9.8	15.2	25.7	31.8	35.3	45.2	60.8	63.8	67.3	70.7	122.2%
Eritrea	..	..	..	..	..	1.0	0.7	0.8	0.7	0.7	0.7	..
Ethiopia	8.6	9.4	10.8	12.4	14.9	16.4	18.6	21.5	22.1	30.7	31.7	113.3%
Gabon	1.1	1.3	1.4	1.4	1.2	1.4	1.5	1.7	1.8	1.9	2.1	75.5%
Ghana	3.0	3.7	4.0	4.4	5.3	6.5	7.7	8.5	9.4	9.5	9.5	78.8%
Kenya	5.4	6.2	7.5	8.9	10.9	12.5	14.0	16.4	17.1	17.5	18.0	64.7%
Libyan Arab Jamahiriya	1.6	3.7	6.9	10.0	11.3	15.8	16.6	17.6	17.6	17.8	18.2	60.8%
Morocco	2.4	3.4	4.9	5.6	6.9	8.6	10.2	13.1	13.3	14.4	15.0	115.8%
Mozambique	6.9	6.7	6.7	6.4	5.9	6.3	7.2	8.5	8.7	9.2	9.3	57.3%
Namibia	..	..	..	..	..	0.9	1.0	1.4	1.5	1.5	1.8	..
Nigeria	36.1	41.7	52.5	61.4	70.6	80.0	90.9	105.5	105.2	105.3	111.2	57.5%
Senegal	1.2	1.4	1.6	1.6	1.7	1.9	2.4	2.8	2.8	2.8	2.9	69.5%
South Africa	45.1	53.8	65.1	86.4	90.9	104.9	110.3	125.9	128.8	134.3	134.5	48.0%
Sudan	7.0	7.5	8.4	9.5	10.6	12.0	13.5	15.5	15.5	14.9	15.4	44.6%
United Rep. of Tanzania	7.6	7.7	8.0	8.8	9.7	11.0	13.4	17.2	17.8	18.3	19.0	94.8%
Togo	0.7	0.8	0.9	1.0	1.3	1.6	2.1	2.4	2.4	2.5	2.6	102.9%
Tunisia	1.7	2.2	3.3	4.2	4.9	5.8	7.3	8.2	8.5	8.8	9.2	85.6%
Zambia	3.5	3.9	4.5	4.9	5.4	5.8	6.2	7.0	7.2	7.2	7.4	36.2%
Zimbabwe	5.4	5.9	6.5	7.4	9.3	9.8	9.9	9.7	9.7	9.6	9.5	2.2%
Other Africa	26.3	28.7	32.8	36.7	41.9	47.2	54.7	64.5	66.3	68.8	72.9	74.0%
Africa	192.2	222.6	274.4	340.5	387.5	442.9	502.3	592.6	607.7	635.7	655.4	69.1%
Bahrain	1.4	2.1	2.8	4.2	4.4	4.9	5.9	7.5	8.3	8.8	9.2	112.1%
Islamic Rep. of Iran	16.7	27.0	38.4	54.2	68.3	94.0	119.0	164.5	179.4	194.2	202.1	195.7%
Iraq	4.4	5.7	10.5	15.8	18.1	26.0	25.4	33.1	34.3	32.5	34.0	88.0%
Israel	5.7	7.0	7.8	7.6	11.5	15.5	18.2	20.2	20.9	21.7	22.0	91.8%
Jordan	0.5	0.7	1.5	2.6	3.3	4.3	4.9	6.7	6.8	7.2	7.1	116.6%
Kuwait	5.8	5.8	14.8	14.3	7.8	16.0	20.0	27.5	24.7	25.2	26.3	236.1%
Lebanon	1.7	2.0	2.3	2.7	2.2	4.3	4.9	5.4	4.7	4.0	5.2	133.4%
Oman	0.2	0.2	1.1	2.1	3.9	6.1	8.1	10.8	13.7	14.7	16.4	323.8%
Qatar	0.9	2.1	3.5	6.1	6.9	8.7	11.5	17.7	19.8	23.7	24.1	250.2%
Saudi Arabia	7.6	9.2	31.6	46.7	59.0	86.7	104.7	136.6	143.1	148.1	161.6	173.7%
Syrian Arab Republic	2.6	3.5	5.1	8.7	11.4	14.0	17.4	17.5	18.6	19.6	19.7	73.1%
United Arab Emirates	1.0	1.9	7.2	13.3	19.9	27.3	33.7	43.1	45.4	51.6	58.4	194.0%
Yemen	0.7	0.7	1.3	1.7	2.5	3.4	4.7	6.6	6.9	7.2	7.5	197.5%
Middle East	49.4	67.9	128.0	179.9	219.2	311.2	378.5	497.3	526.5	558.6	593.7	170.9%
Albania	1.7	2.0	3.1	2.7	2.7	1.3	1.8	2.3	2.1	2.2	2.1	-21.5%
Bosnia and Herzegovina *	..	..	..	..	7.0	1.5	4.4	5.0	5.4	5.6	6.0	-14.5%
Bulgaria	19.0	23.2	28.4	30.6	28.6	23.1	18.7	19.9	20.4	20.1	19.8	-30.8%
Croatia *	..	..	..	..	9.0	7.0	7.8	8.9	8.9	9.3	9.1	0.8%
Cyprus	0.6	0.6	0.9	0.9	1.4	1.7	2.1	2.2	2.3	2.4	2.6	90.1%
Gibraltar	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	171.5%
FYR of Macedonia *	..	..	..	..	2.5	2.5	2.7	2.9	2.9	3.0	3.1	25.3%
Malta	0.2	0.2	0.3	0.3	0.7	0.7	0.7	0.9	0.8	0.9	0.8	17.8%
Romania	42.1	51.8	65.2	64.9	62.3	46.3	36.2	38.3	39.8	39.3	39.4	-36.7%
Serbia *	..	..	..	..	19.3	13.6	13.3	15.0	15.7	15.8	16.0	-17.1%
Slovenia *	..	..	..	..	5.7	6.1	6.4	7.3	7.3	7.3	7.7	35.5%
Former Yugoslavia *	21.9	25.5	33.7	41.1	..	..	..	..	..	..	..	..
Non-OECD Europe	85.6	103.3	131.6	140.7	139.2	104.0	94.1	102.9	106.0	106.1	106.7	-23.3%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

Total primary energy supply

million tonnes of oil equivalent

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	7.7	1.6	2.0	2.5	2.5	2.8	3.0	-61.1%
Azerbaijan	..	..	..	..	25.8	12.7	11.4	13.4	13.6	12.1	13.4	-48.3%
Belarus	..	..	..	..	45.5	24.7	24.7	26.9	28.6	28.1	28.1	-38.2%
Estonia	..	..	..	..	9.6	5.0	4.7	5.2	5.0	5.6	5.4	-43.6%
Georgia	..	..	..	..	12.1	3.7	2.9	2.8	3.0	3.3	3.0	-75.3%
Kazakhstan	..	..	..	..	72.7	52.0	40.3	56.2	63.5	66.5	70.9	-2.5%
Kyrgyzstan	..	..	..	..	7.5	2.4	2.4	2.7	2.7	3.1	2.9	-61.8%
Latvia	..	..	..	..	7.9	4.6	3.7	4.4	4.5	4.7	4.5	-42.9%
Lithuania	..	..	..	..	16.1	8.7	7.1	8.6	8.5	9.3	9.2	-43.0%
Republic of Moldova	..	..	..	..	9.9	4.4	2.8	3.5	3.4	3.3	3.1	-68.1%
Russian Federation	..	..	..	..	879.2	636.6	619.3	651.7	670.7	672.6	686.8	-21.9%
Tajikistan	..	..	..	..	5.3	2.2	2.1	2.3	2.4	2.6	2.5	-53.0%
Turkmenistan	..	..	..	..	19.6	13.9	14.5	16.5	16.6	18.2	18.8	-4.2%
Ukraine	..	..	..	..	251.8	163.8	133.8	142.9	137.3	137.3	136.1	-45.9%
Uzbekistan	..	..	..	..	46.4	42.6	50.7	47.0	48.9	48.7	50.5	8.9%
Former Soviet Union *	768.3	939.9	1 109.5	1 247.9	1 417.1	979.1	922.6	986.5	1 011.3	1 018.2	1 038.2	-26.7%
Argentina	33.7	35.9	41.8	41.3	46.1	53.9	61.0	67.0	73.0	73.5	76.4	65.7%
Bolivia	1.0	1.5	2.4	2.6	2.8	4.0	4.9	4.4	4.5	5.7	5.7	105.3%
Brazil	69.8	91.1	113.9	129.3	140.2	161.1	189.2	215.4	223.0	235.4	248.5	77.2%
Chile	8.7	7.6	9.5	9.6	13.8	18.9	26.2	29.6	30.5	30.7	31.4	127.2%
Colombia	13.8	15.4	18.5	20.9	24.2	28.5	26.8	28.0	29.6	29.5	30.8	27.0%
Costa Rica	1.1	1.3	1.5	1.7	2.0	2.3	3.0	4.1	4.5	5.0	4.9	141.8%
Cuba	10.9	13.0	14.8	14.4	16.5	10.3	11.3	9.7	10.3	9.8	12.1	-26.9%
Dominican Republic	2.3	3.1	3.4	3.6	4.1	5.9	7.7	7.7	7.8	8.0	8.2	99.1%
Ecuador	2.3	3.3	5.0	5.8	6.0	7.1	8.0	10.8	11.0	11.4	10.3	72.5%
El Salvador	1.8	2.3	2.5	2.6	2.5	3.4	4.0	4.5	4.6	5.0	4.9	97.8%
Guatemala	2.7	3.3	3.8	3.8	4.4	5.4	7.1	7.9	8.1	8.3	8.1	82.0%
Haiti	1.5	1.7	2.1	1.9	1.6	1.7	2.0	2.6	2.6	2.8	2.8	77.7%
Honduras	1.4	1.5	1.9	2.0	2.4	2.8	3.0	4.0	4.0	4.7	4.6	94.3%
Jamaica	2.0	2.7	2.3	1.7	2.8	3.2	3.7	3.7	4.3	4.9	4.4	57.3%
Netherlands Antilles	5.5	3.8	3.9	1.8	1.5	1.3	2.0	1.9	1.9	2.2	2.2	48.3%
Nicaragua	1.2	1.5	1.5	1.9	2.1	2.3	2.7	3.3	3.4	3.5	3.5	68.2%
Panama	1.7	1.7	1.4	1.6	1.5	2.0	2.6	2.6	2.9	2.8	2.9	94.4%
Paraguay	1.4	1.5	2.1	2.3	3.1	3.9	3.9	4.0	4.0	4.2	4.4	41.9%
Peru	9.1	10.4	11.3	10.6	9.7	11.0	12.2	13.5	13.1	14.1	14.7	51.1%
Trinidad and Tobago	2.6	2.3	3.8	5.1	6.0	6.3	9.8	16.2	19.9	19.1	19.4	225.1%
Uruguay	2.4	2.4	2.6	2.0	2.3	2.6	3.1	3.0	3.2	3.2	4.2	85.7%
Venezuela	19.5	25.0	35.4	39.4	43.6	51.6	56.4	59.5	60.8	63.6	64.1	47.1%
Other Latin America	4.7	6.0	6.0	3.9	4.9	5.2	5.8	6.4	6.6	6.7	6.8	40.5%
Latin America	201.2	238.4	291.5	309.8	343.9	394.6	456.4	509.8	533.8	553.9	575.2	67.2%
Bangladesh	5.7	6.7	8.4	9.9	12.7	15.9	18.6	23.9	25.4	26.5	27.9	119.4%
Brunei Darussalam	0.2	0.7	1.4	1.8	1.8	2.3	2.5	2.5	3.3	3.3	3.6	105.9%
Cambodia	..	..	..	..	..	3.4	4.0	4.8	5.0	5.1	5.2	..
Chinese Taipei	10.1	14.4	28.0	34.2	48.2	63.8	85.1	102.6	104.8	109.9	105.5	118.7%
India	156.2	177.4	207.5	257.1	318.9	386.4	459.5	536.9	563.7	595.1	621.0	94.7%
Indonesia	36.1	41.9	57.3	67.9	103.9	133.6	155.4	179.4	181.3	190.6	198.7	91.2%
DPR of Korea	19.4	22.3	30.4	36.0	33.2	22.0	19.8	21.4	21.7	18.4	20.3	-39.0%
Malaysia	5.9	7.2	11.9	15.5	22.0	37.1	47.3	62.1	63.3	69.2	72.7	230.9%
Mongolia	..	..	..	3.1	3.4	2.7	2.4	2.6	2.9	3.1	3.2	-7.8%
Myanmar	7.9	8.4	9.4	11.0	10.7	11.8	12.5	16.0	15.5	15.6	15.7	47.0%
Nepal	3.7	4.0	4.6	5.1	5.8	6.7	8.1	9.1	9.3	9.6	9.8	69.3%
Pakistan	17.0	20.3	24.9	32.4	43.0	53.8	63.7	76.5	79.6	84.3	82.8	92.8%
Philippines	15.0	17.6	21.9	22.9	27.5	34.5	41.0	39.7	39.4	40.0	41.1	49.4%
Singapore	2.7	3.7	5.1	6.8	11.5	18.9	18.1	23.9	23.5	19.6	18.5	61.7%
Sri Lanka	3.8	4.1	4.5	5.0	5.5	5.9	8.3	9.0	9.1	9.3	8.9	62.0%
Thailand	13.7	17.3	22.0	25.2	42.0	62.4	72.2	97.2	99.8	103.9	107.2	155.1%
Vietnam	17.4	18.5	19.6	21.7	24.3	30.1	37.1	51.2	52.7	56.3	59.4	144.3%
Other Asia	4.4	5.3	7.4	6.0	6.1	6.9	7.2	8.6	8.6	8.4	8.8	45.0%
Asia	319.2	370.0	464.1	561.5	720.5	898.2	1 062.5	1 267.3	1 308.9	1 368.0	1 410.4	95.7%
People's Rep. of China	391.7	484.0	598.5	692.0	863.0	1 046.7	1 093.9	1 694.7	1 851.4	1 962.4	2 116.4	145.3%
Hong Kong, China	3.0	3.6	4.6	6.7	8.7	10.6	13.4	12.7	13.3	14.3	14.1	61.6%
China	394.7	487.7	603.1	698.7	871.7	1 057.4	1 107.3	1 707.4	1 864.7	1 976.8	2 130.6	144.4%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

GDP using exchange rates

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World	12 936.2	14 985.8	18 137.9	20 539.7	24 228.8	27 190.7	32 150.1	36 849.3	38 300.7	39 783.7	40 481.5	67.1%
<i>Annex I Parties</i>	..	..	..	..	19 879.9	21 637.5	25 228.5	27 982.2	28 785.1	29 533.3	29 672.6	49.3%
<i>Annex II Parties</i>	10 335.9	11 710.7	13 944.4	15 840.8	18 851.9	20 789.0	24 246.7	26 732.3	27 447.5	28 109.7	28 196.6	49.6%
<i>North America</i>	4 155.4	4 634.3	5 554.1	6 500.3	7 607.6	8 594.0	10 623.7	11 972.3	12 293.9	12 560.0	12 612.7	65.8%
<i>Europe</i>	4 093.5	4 601.2	5 346.4	5 796.1	6 800.8	7 373.3	8 503.2	9 245.2	9 520.5	9 775.2	9 835.0	44.6%
<i>Pacific</i>	2 087.0	2 475.2	3 043.9	3 544.4	4 443.4	4 821.7	5 119.7	5 514.8	5 633.0	5 774.6	5 748.9	29.4%
<i>Annex I EIT</i>	..	..	..	..	842.1	630.7	715.2	916.9	981.6	1 051.0	1 100.1	30.6%
<i>Non-Annex I Parties</i>	..	..	..	..	4 348.9	5 553.2	6 921.7	8 867.0	9 515.5	10 250.4	10 808.9	148.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	12 615.6	13 408.4	15 050.4	16 480.5	16 960.4	17 445.7	17 530.3	39.0%
Non-OECD Total	2 078.0	2 604.4	3 351.9	3 722.3	4 206.4	5 024.6	6 171.1	8 069.3	8 691.4	9 412.3	9 977.8	137.2%
OECD Total	10 858.2	12 381.4	14 786.0	16 817.4	20 022.4	22 166.1	25 979.0	28 779.9	29 609.3	30 371.4	30 503.7	52.3%
Canada	288.3	343.3	412.0	471.7	543.6	592.1	724.9	821.9	845.4	866.8	870.4	60.1%
Mexico	208.0	274.1	378.4	416.5	452.6	488.2	636.7	698.7	733.8	759.0	769.3	70.0%
United States	3 867.1	4 291.0	5 142.1	6 028.6	7 064.0	8 002.0	9 898.8	11 150.4	11 448.5	11 693.2	11 742.3	66.2%
OECD N. America	4 363.4	4 908.4	5 932.5	6 916.8	8 060.2	9 082.2	11 260.4	12 671.0	13 027.8	13 319.0	13 381.9	66.0%
Australia	163.4	181.4	210.4	244.0	281.4	330.1	399.6	471.4	486.9	504.9	516.4	83.5%
Japan	1 894.9	2 259.9	2 800.6	3 261.9	4 122.4	4 445.4	4 667.5	4 979.6	5 081.1	5 202.7	5 166.3	25.3%
Korea	68.9	91.6	128.0	186.6	295.6	430.5	533.4	664.4	698.8	734.5	750.8	154.0%
New Zealand	28.7	33.9	32.9	38.5	39.6	46.2	52.7	63.8	65.0	67.0	66.2	67.2%
OECD Pacific	2 155.9	2 566.8	3 171.9	3 730.9	4 739.0	5 252.2	5 653.1	6 179.1	6 331.8	6 509.0	6 499.7	37.2%
Austria	88.6	102.2	120.3	129.3	149.0	165.0	191.2	206.9	214.1	221.7	226.2	51.8%
Belgium	113.8	130.8	152.9	160.2	186.5	201.9	232.4	251.4	258.3	265.9	268.7	44.1%
Czech Republic	38.3	43.7	48.7	51.1	55.3	52.7	56.7	68.1	72.8	77.2	79.1	43.1%
Denmark	83.2	88.1	101.0	115.5	123.9	139.1	160.1	170.4	176.2	179.1	177.6	43.4%
Finland	51.9	62.9	73.5	84.1	99.3	96.3	121.7	138.5	144.7	151.8	153.6	54.7%
France	630.8	727.7	861.1	929.8	1 091.8	1 156.3	1 328.0	1 442.3	1 474.3	1 508.5	1 515.0	38.8%
Germany	950.5	1 038.9	1 225.9	1 311.9	1 543.2	1 720.5	1 900.2	1 957.4	2 019.4	2 069.2	2 095.2	35.8%
Greece	64.8	76.8	94.2	94.8	100.8	107.3	127.1	155.2	162.2	169.5	172.9	71.5%
Hungary	25.7	33.0	39.3	42.9	44.0	39.0	47.3	58.2	60.5	61.1	61.5	39.8%
Iceland	3.2	3.8	5.2	5.8	6.8	6.9	8.7	10.7	11.2	11.8	12.0	77.1%
Ireland	22.2	27.3	34.1	38.7	48.7	61.0	96.6	126.1	132.8	140.8	136.5	180.6%
Italy	518.2	594.6	739.1	803.5	937.6	998.7	1 097.3	1 146.8	1 170.2	1 188.5	1 176.1	25.4%
Luxembourg	6.1	6.8	7.6	8.6	12.4	15.1	20.3	24.2	25.5	27.2	27.2	119.2%
Netherlands	173.6	196.5	226.2	239.1	282.0	315.8	385.1	411.2	425.1	440.5	449.3	59.3%
Norway	61.0	73.1	91.2	107.5	117.0	140.5	168.3	187.8	192.1	197.3	200.9	71.8%
Poland	89.2	114.1	119.0	120.0	118.2	131.6	171.3	199.4	211.8	226.1	237.5	101.0%
Portugal	41.3	48.0	61.5	64.3	84.7	92.2	112.7	117.7	119.3	121.5	121.5	43.3%
Slovak Republic	12.9	14.7	16.3	17.6	18.9	17.3	20.4	25.9	28.1	31.1	33.0	74.5%
Spain	241.9	299.4	330.0	353.6	440.6	474.9	580.7	681.9	709.3	734.6	740.9	68.1%
Sweden	134.8	151.8	162.2	177.7	201.5	208.4	245.6	278.6	290.4	297.8	297.2	47.5%
Switzerland	166.1	166.2	180.7	194.7	224.8	225.9	249.9	266.7	276.4	286.3	291.4	29.7%
Turkey	79.3	99.6	111.9	141.9	186.0	217.8	266.6	333.0	356.0	372.6	376.0	102.2%
United Kingdom	741.5	806.4	879.8	976.9	1 150.3	1 247.8	1 477.5	1 671.5	1 719.2	1 763.1	1 772.8	54.1%
OECD Europe	4 338.9	4 906.2	5 681.6	6 169.6	7 223.2	7 831.7	9 065.5	9 929.9	10 249.7	10 543.4	10 622.0	47.1%
<i>European Union - 27</i>	..	..	..	..	6 805.3	7 339.6	8 479.7	9 272.2	9 565.1	9 836.5	9 910.3	45.6%

GDP using exchange rates

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	2 078.0	2 604.4	3 351.9	3 722.3	4 206.4	5 024.6	6 171.1	8 069.3	8 691.4	9 412.3	9 977.8	137.2%
Algeria	17.5	26.1	35.3	44.6	46.4	47.0	54.8	69.6	71.0	73.1	75.3	62.4%
Angola	6.7	6.7	6.7	7.2	8.5	6.7	9.1	14.9	17.7	21.3	24.5	188.9%
Benin	0.8	0.9	1.1	1.4	1.4	1.7	2.3	2.7	2.8	3.0	3.1	120.4%
Botswana	..	..	..	1.9	3.4	4.1	6.2	8.0	8.2	8.5	8.5	149.1%
Cameroon	3.5	4.7	6.3	9.9	8.8	8.0	10.1	12.1	12.5	12.9	13.4	52.6%
Congo	1.0	1.4	1.7	2.8	2.8	2.9	3.2	4.0	4.2	4.2	4.4	56.9%
Dem. Rep. of Congo	7.1	7.6	7.0	7.7	7.7	5.3	4.3	5.3	5.6	6.0	6.3	-17.4%
Côte d'Ivoire	5.1	6.3	7.7	7.8	8.3	8.9	10.4	10.4	10.5	10.7	10.9	31.4%
Egypt	21.0	24.1	38.5	53.3	65.6	77.5	99.8	118.8	126.9	135.9	145.5	121.8%
Eritrea	..	..	..	..	..	0.6	0.6	0.7	0.7	0.7	0.7	..
Ethiopia	4.2	4.6	5.1	4.9	6.2	6.6	8.2	11.2	12.4	13.8	15.3	145.7%
Gabon	1.9	3.9	3.6	4.1	4.3	5.0	5.1	5.5	5.6	5.9	6.0	40.1%
Ghana	2.7	2.5	2.6	2.6	3.3	4.0	5.0	6.4	6.8	7.2	7.6	133.5%
Kenya	4.0	5.2	7.1	8.0	10.5	11.4	12.7	15.2	16.1	17.2	17.9	69.5%
Libyan Arab Jamahiriya	34.4	27.8	43.8	37.7	29.8	31.8	34.5	44.0	46.5	49.6	53.0	77.8%
Morocco	12.8	15.4	20.1	23.6	29.3	30.7	37.0	47.2	50.9	52.2	55.3	88.6%
Mozambique	2.8	2.4	2.5	1.9	2.5	3.0	4.2	6.4	7.0	7.5	7.9	217.8%
Namibia	..	..	..	..	..	3.3	3.9	5.0	5.3	5.5	5.7	..
Nigeria	22.6	26.0	31.5	27.0	35.0	39.5	46.0	61.9	65.7	70.0	73.7	110.6%
Senegal	2.3	2.5	2.7	3.1	3.5	3.8	4.7	5.9	6.0	6.3	6.5	86.9%
South Africa	71.5	82.0	95.5	102.2	110.9	115.8	132.9	160.6	169.2	177.8	183.2	65.2%
Sudan	4.0	4.9	5.5	5.7	7.1	9.1	12.4	16.6	18.4	20.3	22.0	211.6%
United Rep. of Tanzania	3.6	4.3	4.9	5.2	6.8	7.4	9.1	12.5	13.4	14.3	15.4	126.3%
Togo	0.6	0.8	1.0	0.9	1.1	1.1	1.3	1.5	1.5	1.6	1.6	47.8%
Tunisia	4.7	6.3	8.6	10.6	12.2	14.8	19.4	24.1	25.5	27.1	28.5	132.9%
Zambia	2.4	2.7	2.7	2.8	3.0	2.8	3.2	4.1	4.3	4.6	4.9	61.4%
Zimbabwe	3.5	4.1	4.4	5.4	6.7	7.1	7.4	5.6	5.3	5.0	4.7	-30.0%
Other Africa	24.0	26.0	30.9	32.6	37.8	38.5	48.7	63.2	66.4	70.3	74.5	97.0%
Africa	264.7	299.1	376.9	414.8	462.8	498.4	596.5	743.3	786.5	832.5	876.2	89.3%
Bahrain	1.3	2.4	4.0	3.7	4.6	6.5	8.0	10.7	11.5	12.3	13.1	180.8%
Islamic Rep. of Iran	46.6	66.1	57.3	69.4	70.3	83.1	101.3	133.0	140.8	151.8	160.3	128.0%
Iraq	50.5	64.2	96.6	61.8	33.0	12.6	25.9	19.8	19.9	20.9	22.9	-30.5%
Israel	32.4	42.2	48.7	56.9	70.5	97.6	124.7	138.8	146.1	153.7	159.8	126.7%
Jordan	2.1	2.0	4.2	5.4	5.1	7.2	8.5	11.4	12.4	13.3	14.0	173.1%
Kuwait	31.9	26.4	27.9	22.0	25.3	34.3	37.7	56.6	60.2	62.9	66.9	164.0%
Lebanon	12.7	12.4	10.5	14.8	8.4	14.9	16.8	20.5	20.4	21.9	23.7	182.6%
Oman	3.2	4.1	5.4	10.9	12.7	16.8	19.9	24.9	26.8	28.7	30.8	143.6%
Qatar	9.0	9.1	10.6	9.0	8.8	10.2	17.8	26.1	28.4	32.4	37.7	327.4%
Saudi Arabia	52.9	110.0	153.7	121.8	144.1	166.0	188.4	226.9	234.1	242.0	252.1	74.9%
Syrian Arab Republic	4.0	6.9	9.5	10.9	11.8	17.3	19.3	23.8	25.0	26.0	27.4	132.5%
United Arab Emirates	8.8	22.7	47.3	41.3	46.4	54.8	70.6	97.8	107.0	114.9	123.4	166.1%
Yemen	1.3	1.9	3.3	4.7	5.5	7.2	9.4	11.6	12.0	12.4	12.9	133.6%
Middle East	256.6	370.5	479.0	432.5	446.5	528.5	648.3	801.9	844.6	893.3	945.0	111.6%
Albania	1.7	2.1	2.8	3.1	3.2	2.8	3.7	4.8	5.0	5.3	5.7	75.8%
Bosnia and Herzegovina *	..	..	..	..	1.5	1.6	5.5	7.0	7.4	8.0	8.4	461.6%
Bulgaria	6.4	8.8	11.8	13.9	15.0	13.1	12.6	16.3	17.4	18.5	19.6	30.6%
Croatia *	..	..	..	..	25.2	18.2	21.3	26.7	27.9	29.4	30.1	19.8%
Cyprus	2.1	1.9	3.4	4.4	6.2	7.7	9.3	10.9	11.4	11.9	12.3	98.3%
Gibraltar	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.8	0.9	0.9	0.9	55.3%
FYR of Macedonia *	..	..	..	..	3.9	3.1	3.6	3.8	4.0	4.2	4.4	13.1%
Malta	0.6	0.9	1.6	1.8	2.4	3.1	3.9	4.1	4.2	4.3	4.4	84.7%
Romania	18.8	28.4	40.9	48.2	44.0	39.5	37.1	48.9	52.8	55.9	61.1	38.9%
Serbia *	..	..	..	..	10.2	10.0	9.9	11.6	12.2	13.1	13.9	36.1%
Slovenia *	..	..	..	..	16.6	16.1	19.9	23.8	25.2	26.9	27.9	67.7%
Former Yugoslavia *	33.7	41.3	55.6	56.6	..	..	..	..	..	..	..	..
Non-OECD Europe	63.7	83.9	116.7	128.5	128.8	115.9	127.6	158.7	168.4	178.5	188.7	46.5%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

GDP using exchange rates

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	2.8	1.5	1.9	3.4	3.9	4.4	4.7	65.9%
Azerbaijan	..	..	..	..	9.0	3.7	5.3	9.9	13.4	16.7	18.5	106.6%
Belarus	..	..	..	..	14.4	9.4	12.7	18.3	20.1	21.9	24.0	67.4%
Estonia	..	..	..	..	5.9	4.1	5.7	8.3	9.1	9.8	9.5	59.2%
Georgia	..	..	..	..	8.2	2.3	3.1	4.4	4.8	5.4	5.5	-33.0%
Kazakhstan	..	..	..	..	26.3	16.2	18.3	30.0	33.2	36.1	37.3	41.4%
Kyrgyzstan	..	..	..	..	2.1	1.0	1.4	1.6	1.7	1.8	2.0	-3.6%
Latvia	..	..	..	..	10.4	5.9	7.8	11.6	13.0	14.3	13.7	31.2%
Lithuania	..	..	..	..	16.1	9.3	11.4	16.6	17.9	19.5	20.1	25.4%
Republic of Moldova	..	..	..	..	3.6	1.5	1.3	1.8	1.9	2.0	2.1	-42.0%
Russian Federation	..	..	..	..	386.2	239.9	259.7	349.5	376.4	406.7	429.5	11.2%
Tajikistan	..	..	..	..	2.3	0.9	0.9	1.3	1.4	1.6	1.7	-25.9%
Turkmenistan	..	..	..	..	3.8	2.4	2.9	6.3	7.0	7.8	8.6	124.4%
Ukraine	..	..	..	..	72.0	34.5	31.3	45.2	48.5	52.4	53.5	-25.7%
Uzbekistan	..	..	..	..	14.0	11.4	13.8	17.9	19.2	21.0	22.9	63.3%
Former Soviet Union *	404.4	505.6	616.9	685.7	577.0	344.0	377.4	526.3	571.5	621.4	653.5	13.3%
Argentina	167.5	184.7	212.1	186.6	182.2	250.3	284.2	313.6	340.2	369.6	395.4	117.0%
Bolivia	4.1	5.2	5.7	5.2	5.8	7.1	8.4	10.2	10.7	10.7	11.4	96.1%
Brazil	212.7	311.6	430.4	454.2	501.8	583.6	644.7	739.6	769.0	812.6	853.8	70.2%
Chile	23.0	19.7	28.0	29.3	40.6	61.5	75.4	92.6	96.9	101.4	104.6	158.0%
Colombia	32.0	39.7	51.6	57.7	73.4	89.9	94.1	114.0	121.9	131.1	134.4	83.1%
Costa Rica	4.6	5.8	7.5	7.5	9.6	12.5	15.9	19.5	21.2	22.8	23.5	145.5%
Cuba	15.5	18.5	21.8	32.8	32.5	22.5	28.2	35.5	39.9	42.7	43.6	34.1%
Dominican Republic	5.9	8.2	10.5	11.6	13.3	17.2	24.0	28.5	31.6	34.3	36.1	170.9%
Ecuador	5.9	8.4	10.9	11.7	13.3	15.2	15.9	20.8	21.6	22.1	23.5	76.6%
El Salvador	7.2	8.7	8.7	7.6	8.4	11.3	13.1	14.7	15.3	16.0	16.4	96.1%
Guatemala	7.2	8.9	11.8	11.2	12.9	15.9	19.3	22.4	23.6	25.1	26.1	102.4%
Haiti	3.3	3.5	4.6	4.4	4.4	3.4	3.8	3.7	3.8	4.0	4.0	-8.6%
Honduras	2.5	2.9	4.0	4.4	5.1	6.1	7.1	8.9	9.5	10.1	10.5	104.2%
Jamaica	6.4	6.8	5.8	5.9	7.6	9.2	9.0	9.9	10.2	10.3	10.2	35.1%
Netherlands Antilles	..	..	1.0	1.0	1.0	1.2	1.2	1.3	1.3	1.3	1.3	27.4%
Nicaragua	3.2	4.0	3.2	3.3	2.8	3.1	3.9	4.6	4.8	5.0	5.1	81.9%
Panama	4.5	5.2	6.2	7.3	7.1	9.3	11.6	14.3	15.6	17.4	19.0	167.4%
Paraguay	2.0	2.7	4.5	4.9	5.9	7.1	7.1	8.0	8.4	8.9	9.5	59.5%
Peru	28.5	34.9	39.1	39.7	36.1	47.1	53.3	65.4	70.5	76.7	84.3	133.6%
Trinidad and Tobago	4.5	5.1	7.5	6.7	6.0	6.4	8.2	12.0	13.5	14.2	14.7	146.1%
Uruguay	12.6	13.6	17.0	14.0	16.9	20.6	22.8	23.9	25.0	26.9	29.3	72.9%
Venezuela	68.3	77.8	87.8	83.8	95.3	112.9	117.1	132.9	146.6	159.0	166.6	74.9%
Other Latin America	10.0	10.3	13.9	14.8	19.4	20.8	24.8	27.5	28.5	29.5	30.0	54.3%
Latin America	631.5	786.4	993.7	1 005.5	1 101.4	1 334.1	1 493.3	1 724.0	1 829.4	1 951.6	2 053.3	86.4%
Bangladesh	17.8	16.7	20.4	24.5	29.5	36.5	47.1	61.4	65.4	69.6	74.0	150.9%
Brunei Darussalam	2.9	3.6	5.8	4.8	4.8	5.6	6.0	6.6	6.9	7.0	6.9	43.1%
Cambodia	..	..	..	..	..	2.6	3.7	5.9	6.5	7.1	7.5	..
Chinese Taipei	35.1	47.7	79.4	109.9	170.9	242.4	321.2	376.0	393.6	416.0	416.5	143.7%
India	119.1	135.2	157.6	202.6	270.5	346.6	460.2	644.7	707.0	771.1	825.8	205.3%
Indonesia	29.5	40.2	58.8	77.4	109.2	159.4	165.0	207.9	219.3	233.1	247.2	126.5%
DPR of Korea	3.0	4.7	8.2	13.1	15.6	12.2	10.9	11.3	11.5	11.4	11.6	-25.4%
Malaysia	13.1	17.5	26.4	33.9	47.2	74.2	93.8	118.2	125.1	133.0	139.2	194.8%
Mongolia	..	..	..	0.9	1.1	1.0	1.1	1.5	1.6	1.8	1.9	76.7%
Myanmar	2.6	2.9	4.0	5.0	4.5	5.9	8.9	16.2	17.4	18.3	19.2	326.4%
Nepal	1.7	1.9	2.1	2.7	3.4	4.3	5.5	6.5	6.7	6.9	7.3	116.4%
Pakistan	17.4	20.2	27.3	37.9	50.2	63.0	74.0	94.4	100.2	106.2	112.5	123.9%
Philippines	28.2	35.4	47.6	44.6	56.2	62.6	75.9	94.5	99.6	106.6	110.7	96.9%
Singapore	10.5	14.5	21.8	29.7	44.7	68.2	92.7	114.7	124.3	133.9	135.5	203.3%
Sri Lanka	4.3	5.0	6.5	8.3	9.8	12.8	16.3	19.8	21.4	22.8	24.2	146.1%
Thailand	20.1	25.4	37.3	48.6	79.4	120.0	122.7	157.4	165.6	173.8	178.2	124.6%
Vietnam	8.1	8.2	8.6	11.9	15.0	22.3	31.2	44.8	48.5	52.6	55.8	271.5%
Other Asia	10.6	11.9	13.8	15.8	18.2	22.5	24.2	33.0	35.8	40.3	43.3	138.2%
Asia	324.2	391.0	525.6	671.5	930.1	1 262.2	1 560.4	2 014.7	2 156.3	2 311.6	2 417.3	159.9%
People's Rep. of China	107.1	133.4	182.9	304.5	444.6	792.8	1 198.5	1 893.4	2 113.0	2 387.7	2 602.6	485.4%
Hong Kong, China	25.9	34.6	60.2	79.4	115.2	148.5	169.1	207.1	221.6	235.8	241.3	109.6%
China	133.0	168.0	243.1	383.8	559.8	941.3	1 367.6	2 100.4	2 334.6	2 623.4	2 843.9	408.1%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

GDP using purchasing power parities

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World	17 540.3	20 644.2	25 098.3	28 668.5	33 357.0	37 830.0	45 761.1	55 438.1	58 465.7	61 747.9	63 865.8	91.5%
<i>Annex I Parties</i>	..	..	..	..	22 397.2	23 506.4	27 471.5	30 891.8	31 901.4	32 853.1	33 137.0	48.0%
<i>Annex II Parties</i>	10 545.7	11 933.6	14 166.6	16 013.7	18 970.5	20 932.3	24 569.5	27 141.3	27 882.6	28 563.0	28 672.9	51.1%
<i>North America</i>	4 214.7	4 705.0	5 638.9	6 597.4	7 719.5	8 715.8	10 772.9	12 141.4	12 467.9	12 738.3	12 791.8	65.7%
<i>Europe</i>	4 752.8	5 364.8	6 250.7	6 765.4	7 949.9	8 616.4	9 940.6	10 815.2	11 137.1	11 435.8	11 503.5	44.7%
<i>Pacific</i>	1 578.2	1 863.9	2 277.0	2 651.0	3 301.1	3 600.1	3 856.0	4 184.7	4 277.6	4 388.9	4 377.6	32.6%
<i>Annex I EIT</i>	..	..	..	..	3 015.6	2 092.6	2 312.7	3 014.2	3 231.8	3 466.3	3 632.9	20.5%
<i>Non-Annex I Parties</i>	..	..	..	..	10 959.8	14 323.6	18 289.6	24 546.4	26 564.4	28 894.8	30 728.8	180.4%
<i>Annex I Kyoto Parties</i>	..	..	..	..	14 867.9	14 987.6	16 935.3	18 936.1	19 589.9	20 253.7	20 472.9	37.7%
Non-OECD Total	5 973.1	7 409.6	9 340.2	10 826.8	12 226.1	14 399.9	18 064.4	24 586.1	26 660.5	29 076.1	30 997.6	153.5%
OECD Total	11 567.2	13 234.6	15 758.1	17 841.7	21 130.9	23 430.0	27 696.6	30 852.1	31 805.3	32 671.8	32 868.3	55.5%
Canada	347.7	414.0	496.7	568.8	655.5	713.9	874.1	991.1	1 019.4	1 045.2	1 049.5	60.1%
Mexico	322.5	425.0	586.6	645.7	701.6	756.9	987.1	1 083.1	1 137.6	1 176.7	1 192.6	70.0%
United States	3 867.1	4 291.0	5 142.1	6 028.6	7 064.0	8 002.0	9 898.8	11 150.4	11 448.5	11 693.2	11 742.3	66.2%
OECD N. America	4 537.2	5 130.0	6 225.4	7 243.1	8 421.1	9 472.7	11 760.0	13 224.5	13 605.5	13 915.0	13 984.3	66.1%
Australia	214.9	238.5	276.6	320.8	370.0	434.1	525.4	619.8	640.2	663.8	679.0	83.5%
Japan	1 319.6	1 573.8	1 950.3	2 271.5	2 870.7	3 095.6	3 250.3	3 467.6	3 538.3	3 623.0	3 597.6	25.3%
Korea	104.5	138.9	194.3	283.1	448.6	653.4	809.4	1 008.2	1 060.5	1 114.6	1 139.4	154.0%
New Zealand	43.7	51.6	50.1	58.7	60.4	70.4	80.3	97.3	99.0	102.1	101.0	67.2%
OECD Pacific	1 682.7	2 002.8	2 471.3	2 934.1	3 749.7	4 253.5	4 665.4	5 192.9	5 338.1	5 503.5	5 517.0	47.1%
Austria	106.8	123.2	145.0	155.8	179.6	199.0	230.5	249.5	258.1	267.2	272.7	51.8%
Belgium	138.7	159.3	186.2	195.2	227.2	245.9	283.1	306.2	314.7	324.0	327.3	44.1%
Czech Republic	104.1	118.7	132.2	138.8	150.2	143.1	154.0	185.1	197.7	209.8	214.9	43.1%
Denmark	80.0	84.7	97.1	111.0	119.1	133.7	153.9	163.8	169.3	172.2	170.7	43.4%
Finland	56.6	68.6	80.1	91.8	108.3	105.0	132.8	151.1	157.8	165.6	167.6	54.7%
France	729.1	841.1	995.3	1 074.7	1 261.9	1 336.4	1 534.9	1 667.0	1 704.0	1 743.6	1 751.0	38.8%
Germany	1 066.9	1 166.2	1 376.1	1 472.6	1 732.2	1 931.2	2 133.0	2 197.2	2 266.7	2 322.6	2 351.8	35.8%
Greece	102.5	121.4	148.9	149.9	159.5	169.7	201.0	245.5	256.6	268.1	273.5	71.5%
Hungary	67.3	86.2	102.7	112.1	115.1	102.1	123.7	152.2	158.3	159.8	160.8	39.8%
Iceland	2.9	3.6	4.8	5.4	6.3	6.4	8.1	10.0	10.4	11.0	11.2	77.1%
Ireland	25.1	30.8	38.5	43.6	54.9	68.9	109.0	142.2	149.9	158.9	154.1	180.6%
Italy	688.3	789.8	981.8	1 067.3	1 245.4	1 326.6	1 457.6	1 523.3	1 554.3	1 578.6	1 562.2	25.4%
Luxembourg	7.0	7.9	8.8	10.0	14.3	17.4	23.4	27.9	29.5	31.4	31.4	119.2%
Netherlands	211.1	238.9	275.0	290.8	342.9	384.0	468.3	500.0	517.0	535.6	546.3	59.3%
Norway	58.8	70.5	88.0	103.6	112.8	135.4	162.3	181.1	185.2	190.2	193.7	71.8%
Poland	210.5	269.3	280.9	283.3	278.9	310.6	404.3	470.6	499.9	533.8	560.5	101.0%
Portugal	64.1	74.4	95.5	99.8	131.5	143.1	174.7	182.5	185.0	188.5	188.4	43.3%
Slovak Republic	37.4	42.6	47.5	51.3	55.0	50.2	59.3	75.3	81.7	90.3	95.9	74.5%
Spain	357.6	442.7	487.9	522.9	651.5	702.1	858.5	1 008.2	1 048.7	1 086.1	1 095.4	68.1%
Sweden	135.2	152.2	162.6	178.2	202.1	209.0	246.3	279.4	291.3	298.7	298.0	47.5%
Switzerland	151.6	151.6	164.8	177.6	205.0	206.0	228.0	243.3	252.1	261.2	265.8	29.7%
Turkey	175.3	220.1	247.4	313.7	411.1	481.5	589.3	736.3	787.0	823.8	831.2	102.2%
United Kingdom	770.6	838.0	914.3	1 015.2	1 195.4	1 296.7	1 535.4	1 737.0	1 786.5	1 832.3	1 842.3	54.1%
OECD Europe	5 347.3	6 101.8	7 061.4	7 664.6	8 960.1	9 703.9	11 271.2	12 434.6	12 861.6	13 253.3	13 366.9	49.2%
<i>European Union - 27</i>	..	..	..	..	8 563.9	9 160.4	10 583.0	11 659.0	12 052.1	12 420.7	12 543.0	46.5%

GDP using purchasing power parities

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	5 973.1	7 409.6	9 340.2	10 826.8	12 226.1	14 399.9	18 064.4	24 586.1	26 660.5	29 076.1	30 997.6	153.5%
Algeria	51.8	77.4	104.5	132.2	137.3	139.1	162.3	206.0	210.2	216.5	222.9	62.4%
Angola	14.8	14.9	15.0	16.0	18.8	14.9	20.2	33.1	39.3	47.2	54.2	188.9%
Benin	2.5	2.8	3.4	4.2	4.4	5.4	7.0	8.5	8.8	9.2	9.7	120.4%
Botswana	..	..	..	4.6	8.1	9.8	14.7	18.9	19.4	20.3	20.1	149.1%
Cameroon	9.7	12.9	17.6	27.4	24.4	22.1	27.9	33.5	34.6	35.8	37.2	52.6%
Congo	1.1	1.6	2.0	3.2	3.1	3.2	3.6	4.5	4.8	4.7	4.9	56.9%
Dem. Rep. of Congo	49.9	52.9	49.1	53.8	53.6	36.8	30.1	37.1	39.2	41.7	44.2	-17.4%
Côte d'Ivoire	12.9	16.1	19.7	20.0	21.2	22.8	26.6	26.6	26.8	27.2	27.8	31.4%
Egypt	50.0	57.4	91.5	126.8	155.9	184.2	237.3	282.3	301.6	323.0	345.8	121.8%
Eritrea	..	..	..	..	..	3.5	3.6	4.1	4.1	4.1	4.2	..
Ethiopia	28.0	30.6	34.1	32.2	41.3	43.4	54.2	74.1	82.1	91.2	101.6	145.8%
Gabon	2.8	5.7	5.3	6.0	6.3	7.3	7.4	8.1	8.2	8.7	8.8	40.1%
Ghana	20.6	19.3	20.3	19.8	25.1	30.9	38.2	48.8	52.0	55.1	58.5	133.6%
Kenya	10.0	13.0	17.7	20.0	26.3	28.5	31.7	37.8	40.2	43.0	44.6	69.5%
Libyan Arab Jamahiriya	46.7	37.8	59.6	51.2	40.5	43.2	46.9	59.8	63.1	67.4	72.0	77.8%
Morocco	38.6	46.5	60.7	71.3	88.5	92.7	111.8	142.6	153.6	157.8	167.0	88.6%
Mozambique	10.8	9.1	9.3	7.3	9.5	11.2	16.1	24.3	26.4	28.3	30.1	217.8%
Namibia	..	..	..	..	..	10.7	12.7	16.1	17.3	18.0	18.4	..
Nigeria	51.9	59.6	72.2	61.9	80.3	90.8	105.6	142.2	151.0	160.7	169.2	110.6%
Senegal	7.6	8.6	9.1	10.4	11.7	13.0	15.8	19.9	20.4	21.3	21.9	86.9%
South Africa	207.5	238.0	277.2	296.5	322.0	336.1	385.6	466.2	491.0	516.0	531.8	65.2%
Sudan	16.0	19.7	22.1	22.9	28.3	36.3	49.6	66.4	73.9	81.4	88.2	211.6%
United Rep. of Tanzania	6.9	8.3	9.5	10.0	13.2	14.4	17.6	24.3	26.0	27.8	29.9	126.4%
Togo	3.5	4.2	5.3	5.2	5.9	5.9	7.3	8.1	8.4	8.6	8.7	47.9%
Tunisia	14.5	19.6	26.6	32.7	37.8	45.7	60.1	74.5	78.8	83.8	88.0	132.9%
Zambia	6.2	7.0	7.1	7.3	7.9	7.3	8.4	10.6	11.3	12.0	12.7	61.4%
Zimbabwe	14.9	17.3	18.6	22.9	28.6	30.4	31.5	23.9	22.8	21.4	20.1	-29.9%
Other Africa	95.9	102.4	117.5	124.3	140.8	141.9	176.3	219.7	229.6	241.6	256.6	82.3%
Africa	775.2	882.6	1 074.8	1 190.0	1 340.6	1 431.5	1 710.2	2 122.0	2 244.6	2 373.7	2 499.1	86.4%
Bahrain	1.7	3.2	5.2	4.9	6.1	8.5	10.4	14.0	15.1	16.1	17.1	180.9%
Islamic Rep. of Iran	170.0	241.3	209.1	253.3	256.5	303.2	369.7	485.2	513.8	554.0	585.0	128.0%
Iraq	69.0	87.8	132.0	84.5	45.1	17.2	35.4	27.1	27.2	28.5	31.3	-30.5%
Israel	38.4	50.0	57.7	67.4	83.5	115.7	147.8	164.4	173.1	182.1	189.4	126.7%
Jordan	4.9	4.8	10.0	12.9	12.2	17.2	20.1	27.2	29.6	31.6	33.3	173.1%
Kuwait	36.3	30.0	31.7	25.1	28.8	39.1	42.9	64.4	68.5	71.6	76.1	164.0%
Lebanon	12.2	12.0	10.2	14.2	8.1	14.4	16.2	19.8	19.7	21.2	22.9	182.6%
Oman	4.9	6.4	8.3	16.8	19.6	26.1	30.8	38.7	41.6	44.5	47.8	143.6%
Qatar	8.1	8.2	9.5	8.0	7.9	9.1	15.9	23.3	25.4	29.0	33.8	327.4%
Saudi Arabia	78.8	164.0	229.1	181.5	214.8	247.4	280.8	338.2	348.9	360.7	375.7	74.9%
Syrian Arab Republic	11.1	18.9	26.1	30.1	32.4	47.5	53.2	65.4	68.7	71.6	75.3	132.5%
United Arab Emirates	8.7	22.4	46.7	40.8	45.8	54.2	69.7	96.7	105.7	113.5	122.0	166.1%
Yemen	2.1	2.9	5.1	7.3	8.6	11.3	14.7	18.1	18.7	19.3	20.1	133.6%
Middle East	446.2	651.8	780.8	746.7	769.5	910.7	1 107.8	1 382.5	1 456.0	1 543.8	1 629.7	111.8%
Albania	5.3	6.6	8.8	9.7	9.9	8.7	11.4	14.8	15.5	16.5	17.5	75.8%
Bosnia and Herzegovina *	..	..	..	..	6.1	6.6	22.4	28.5	30.3	32.4	34.3	461.7%
Bulgaria	24.9	34.0	45.8	54.0	58.2	51.0	48.9	63.3	67.6	71.7	76.0	30.6%
Croatia *	..	..	..	..	56.0	40.6	47.5	59.4	62.2	65.6	67.1	19.8%
Cyprus	3.1	2.8	4.9	6.4	9.0	11.2	13.6	15.9	16.5	17.2	17.9	98.3%
Gibraltar	0.4	0.4	0.5	0.5	0.6	0.7	0.8	0.9	0.9	0.9	0.9	55.2%
FYR of Macedonia *	..	..	..	..	13.3	10.5	12.2	13.1	13.6	14.4	15.1	13.1%
Malta	1.1	1.7	2.9	3.2	4.2	5.5	6.9	7.2	7.4	7.7	7.8	84.7%
Romania	67.0	101.4	146.2	172.0	157.0	141.0	132.3	174.6	188.4	199.7	218.1	38.9%
Serbia *	..	..	..	..	37.5	36.8	36.6	42.6	45.0	48.4	51.1	36.1%
Slovenia *	..	..	..	..	28.8	28.1	34.8	41.6	44.1	47.1	48.7	69.0%
Former Yugoslavia *	73.0	89.6	120.6	122.7	..	..	..	..	..	..	..	..
Non-OECD Europe	174.8	236.5	329.6	368.5	380.9	340.7	367.3	461.8	491.4	521.5	554.6	45.6%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

GDP using purchasing power parities

billion 2000 US dollars

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	11.0	5.8	7.5	13.3	15.0	17.1	18.3	65.9%
Azerbaijan	..	..	..	..	33.8	14.2	19.9	37.5	50.5	63.1	69.9	106.6%
Belarus	..	..	..	..	54.2	35.4	48.1	69.0	75.9	82.4	90.7	67.4%
Estonia	..	..	..	..	13.6	9.8	13.5	19.8	21.8	23.4	22.5	65.8%
Georgia	..	..	..	..	25.1	7.1	9.4	13.4	14.7	16.5	16.9	-33.0%
Kazakhstan	..	..	..	..	93.2	57.2	64.7	105.9	117.2	127.7	131.8	41.4%
Kyrgyzstan	..	..	..	..	11.0	5.6	7.4	8.9	9.1	9.9	10.6	-3.6%
Latvia	..	..	..	..	25.2	14.4	18.9	28.0	31.5	34.6	33.0	31.2%
Lithuania	..	..	..	..	42.9	24.9	30.6	44.5	48.0	52.2	53.8	25.4%
Republic of Moldova	..	..	..	..	15.9	6.4	5.6	7.9	8.3	8.6	9.2	-42.0%
Russian Federation	..	..	..	..	1 523.6	922.2	998.3	1 343.6	1 446.7	1 563.4	1 651.2	8.4%
Tajikistan	..	..	..	..	11.5	4.4	4.4	6.9	7.3	7.9	8.5	-25.9%
Turkmenistan	..	..	..	..	20.6	12.9	15.7	33.9	37.8	42.1	46.3	124.4%
Ukraine	..	..	..	..	456.9	219.3	198.5	287.2	308.2	332.5	339.5	-25.7%
Uzbekistan	..	..	..	..	37.7	30.6	36.9	48.0	51.6	56.4	61.5	63.3%
Former Soviet Union *	1 665.5	2 082.2	2 540.8	2 823.8	2 376.3	1 370.0	1 479.4	2 067.9	2 243.6	2 437.9	2 563.7	7.9%
Argentina	263.1	290.0	333.1	292.9	286.1	392.9	446.3	492.4	534.1	580.4	620.8	117.0%
Bolivia	9.7	12.2	13.6	12.3	13.7	16.8	19.9	24.2	25.3	25.3	26.9	96.1%
Brazil	410.5	601.4	830.6	876.7	968.4	1 126.4	1 244.3	1 427.4	1 484.1	1 568.2	1 647.8	70.2%
Chile	43.0	36.8	52.3	54.7	75.7	116.5	142.8	175.5	183.5	192.1	198.2	161.8%
Colombia	95.0	118.1	153.4	171.4	218.1	267.1	279.5	338.7	362.3	389.6	399.5	83.1%
Costa Rica	9.3	11.7	15.0	15.0	19.3	25.2	32.1	39.2	42.7	46.0	47.3	145.5%
Cuba	35.7	42.8	50.3	75.7	75.0	52.0	65.1	81.8	92.1	98.5	100.5	34.1%
Dominican Republic	16.6	23.1	29.8	32.8	37.7	48.6	67.9	80.7	89.3	96.9	102.0	170.9%
Ecuador	14.7	21.0	27.1	29.0	33.2	37.9	39.7	51.8	53.8	55.1	58.7	76.6%
El Salvador	15.9	19.2	19.1	16.6	18.4	24.8	28.9	32.3	33.6	35.2	36.1	96.1%
Guatemala	16.9	21.0	27.7	26.2	30.2	37.2	45.2	52.5	55.3	58.8	61.1	102.4%
Haiti	10.9	11.6	15.3	14.5	14.7	11.4	12.9	12.5	12.8	13.2	13.4	-8.6%
Honduras	7.7	8.9	12.5	13.7	15.9	19.0	22.0	27.6	29.4	31.2	32.5	104.2%
Jamaica	7.5	7.9	6.7	6.9	8.8	10.6	10.5	11.5	11.8	12.0	11.8	35.1%
Netherlands Antilles	..	..	2.3	2.2	2.4	2.7	2.7	2.8	2.9	2.9	3.0	27.4%
Nicaragua	12.6	15.7	12.7	13.1	11.0	12.1	15.4	18.0	18.7	19.4	20.1	81.9%
Panama	7.0	8.0	9.5	11.3	10.9	14.2	17.8	22.0	23.9	26.7	29.1	167.4%
Paraguay	6.4	8.4	14.2	15.4	18.7	22.5	22.3	25.3	26.4	28.1	29.8	59.5%
Peru	65.6	80.3	89.9	91.4	83.0	108.4	122.6	150.5	162.2	176.5	193.9	133.6%
Trinidad and Tobago	6.5	7.3	10.7	9.6	8.6	9.2	11.7	17.2	19.3	20.3	21.0	146.0%
Uruguay	17.8	19.3	24.1	19.8	24.0	29.1	32.3	33.8	35.4	38.1	41.5	72.9%
Venezuela	81.6	93.0	105.0	100.2	113.8	134.9	140.0	158.8	175.2	190.0	199.1	74.9%
Other Latin America	15.5	16.3	20.7	21.4	27.1	29.4	34.7	38.6	40.3	41.5	42.4	56.6%
Latin America	1 169.3	1 473.8	1 875.6	1 922.7	2 114.6	2 548.9	2 856.4	3 315.4	3 514.3	3 746.1	3 936.7	86.2%
Bangladesh	75.3	70.4	86.4	103.7	124.5	154.3	199.0	259.2	276.4	294.1	312.4	150.9%
Brunei Darussalam	3.5	4.2	6.9	5.7	5.7	6.7	7.2	7.9	8.3	8.3	8.2	43.0%
Cambodia	..	..	..	..	..	16.0	22.8	35.6	39.5	43.5	45.8	..
Chinese Taipei	53.6	73.0	121.4	168.1	261.4	370.8	491.4	575.1	602.0	636.3	637.1	143.7%
India	621.7	705.5	822.5	1 057.5	1 411.9	1 809.1	2 402.0	3 365.1	3 690.5	4 024.9	4 310.3	205.3%
Indonesia	107.2	145.9	213.6	280.9	396.4	578.8	599.3	754.9	796.5	846.5	897.8	126.5%
DPR of Korea	10.6	16.7	28.7	45.9	54.8	43.0	38.2	39.8	40.5	40.0	40.9	-25.4%
Malaysia	28.7	38.3	57.7	74.0	103.0	162.0	204.7	258.1	273.0	290.3	303.8	194.8%
Mongolia	..	..	..	3.5	4.3	3.7	4.2	5.8	6.3	6.9	7.5	76.7%
Myanmar	15.8	17.6	23.9	30.3	27.2	35.9	53.9	98.2	105.1	110.9	115.9	326.4%
Nepal	10.1	11.2	12.5	15.9	19.9	25.6	32.4	38.2	39.6	40.9	43.1	116.4%
Pakistan	61.5	71.7	96.8	134.3	178.0	223.2	262.0	334.2	354.9	376.2	398.6	123.9%
Philippines	113.6	142.6	191.5	179.6	226.3	251.9	305.5	380.4	400.7	429.1	445.5	96.9%
Singapore	10.8	14.8	22.3	30.4	45.7	69.8	94.8	117.3	127.1	136.9	138.5	203.3%
Sri Lanka	17.5	20.6	26.6	33.9	40.1	52.1	66.7	81.0	87.2	93.1	98.6	146.1%
Thailand	63.8	80.4	118.0	153.8	251.1	379.8	388.4	498.1	524.1	549.9	564.1	124.6%
Vietnam	41.0	41.4	43.8	60.4	76.3	113.2	158.4	227.5	246.2	267.0	283.5	271.5%
Other Asia	36.0	39.0	44.3	51.1	52.8	57.3	62.5	86.0	91.9	102.2	108.5	105.6%
Asia	1 270.7	1 493.2	1 916.8	2 429.0	3 279.4	4 353.3	5 393.1	7 162.3	7 709.6	8 297.2	8 760.1	167.1%
People's Rep. of China	444.5	553.6	759.4	1 263.9	1 845.6	3 291.0	4 975.2	7 859.8	8 771.5	9 911.8	10 803.8	485.4%
Hong Kong, China	26.8	35.9	62.3	82.2	119.2	153.8	175.1	214.4	229.4	244.1	249.9	109.6%
China	471.3	589.5	821.7	1 346.1	1 964.9	3 444.8	5 150.2	8 074.2	9 000.9	10 155.9	11 053.7	462.6%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World	3 759.2	4 065.3	4 438.5	4 834.3	5 265.2	5 680.4	6 074.0	6 458.6	6 534.5	6 610.5	6 687.9	27.0%
<i>Annex I Parties</i>	..	..	..	..	1 175.3	1 207.3	1 231.4	1 257.1	1 262.5	1 268.7	1 274.9	8.5%
<i>Annex II Parties</i>	705.3	729.4	755.0	775.9	799.4	827.8	853.1	881.8	887.5	893.6	899.6	12.5%
<i>North America</i>	229.7	239.1	252.2	264.3	277.9	295.9	313.1	328.3	331.4	334.7	337.9	21.6%
<i>Europe</i>	354.6	361.4	367.8	371.3	377.3	384.4	389.9	401.1	403.3	405.7	408.2	8.2%
<i>Pacific</i>	121.0	128.8	135.0	140.2	144.3	147.5	150.1	152.5	152.8	153.2	153.5	6.4%
<i>Annex I EIT</i>	..	..	..	..	320.8	319.7	314.1	306.7	305.6	304.8	304.3	-5.1%
<i>Non-Annex I Parties</i>	..	..	..	..	4 089.9	4 473.1	4 842.6	5 201.5	5 272.0	5 341.8	5 413.0	32.3%
<i>Annex I Kyoto Parties</i>	..	..	..	..	859.8	870.7	874.8	882.7	884.6	887.0	889.6	3.5%
Non-OECD Total	2 877.4	3 144.5	3 473.6	3 830.5	4 222.5	4 592.3	4 947.2	5 292.4	5 360.7	5 428.6	5 498.1	30.2%
OECD Total	881.8	920.8	964.9	1 003.8	1 042.7	1 088.1	1 126.8	1 166.2	1 173.8	1 181.9	1 189.8	14.1%
Canada	22.0	23.1	24.5	25.8	27.7	29.3	30.7	32.2	32.6	32.9	33.3	20.4%
Mexico	49.9	56.7	65.7	73.5	81.3	91.1	98.3	103.8	104.7	105.7	106.6	31.2%
United States	207.7	216.0	227.7	238.5	250.2	266.6	282.4	296.0	298.8	301.7	304.5	21.7%
OECD N. America	279.5	295.9	317.9	337.9	359.1	387.0	411.4	432.1	436.1	440.3	444.4	23.8%
Australia	13.2	14.0	14.8	15.9	17.2	18.2	19.3	20.5	20.8	21.2	21.5	25.3%
Japan	105.0	111.8	117.1	121.0	123.6	125.6	126.9	127.8	127.8	127.8	127.7	3.3%
Korea	32.9	35.3	38.1	40.8	42.9	45.1	47.0	48.1	48.3	48.5	48.6	13.4%
New Zealand	2.9	3.1	3.1	3.3	3.5	3.7	3.9	4.2	4.2	4.3	4.3	23.4%
OECD Pacific	153.9	164.1	173.1	181.0	187.1	192.6	197.1	200.6	201.1	201.6	202.1	8.0%
Austria	7.5	7.6	7.5	7.6	7.7	7.9	8.0	8.2	8.3	8.3	8.3	8.6%
Belgium	9.7	9.8	9.9	9.9	10.0	10.1	10.2	10.5	10.5	10.6	10.7	7.4%
Czech Republic	9.8	10.1	10.3	10.3	10.4	10.3	10.3	10.2	10.3	10.3	10.4	0.6%
Denmark	5.0	5.1	5.1	5.1	5.1	5.2	5.3	5.4	5.4	5.5	5.5	6.8%
Finland	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.2	5.3	5.3	5.3	6.6%
France	52.4	53.9	55.1	56.6	58.2	59.4	60.7	63.0	63.4	63.8	64.1	10.2%
Germany	78.3	78.7	78.3	77.7	79.4	81.7	82.2	82.5	82.4	82.3	82.1	3.5%
Greece	9.0	9.2	9.8	10.1	10.3	10.6	10.9	11.1	11.1	11.2	11.2	8.7%
Hungary	10.4	10.5	10.7	10.6	10.4	10.3	10.2	10.1	10.1	10.1	10.0	-3.2%
Iceland	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	25.1%
Ireland	3.0	3.2	3.4	3.5	3.5	3.6	3.8	4.1	4.3	4.4	4.4	26.7%
Italy	54.1	55.4	56.4	56.6	56.7	56.8	56.9	58.6	58.9	59.4	59.9	5.6%
Luxembourg	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	28.0%
Netherlands	13.2	13.7	14.1	14.5	14.9	15.5	15.9	16.3	16.3	16.4	16.4	10.0%
Norway	3.9	4.0	4.1	4.2	4.2	4.4	4.5	4.6	4.7	4.7	4.8	12.4%
Poland	32.8	34.0	35.6	37.2	38.0	38.3	38.3	38.2	38.1	38.1	38.1	0.2%
Portugal	8.7	9.2	9.9	10.1	10.0	10.0	10.2	10.5	10.6	10.6	10.6	6.3%
Slovak Republic	4.6	4.7	5.0	5.2	5.3	5.4	5.4	5.4	5.4	5.4	5.4	2.0%
Spain	34.3	35.7	37.7	38.6	39.0	39.4	40.3	43.4	44.1	44.9	45.6	16.9%
Sweden	8.1	8.2	8.3	8.4	8.6	8.8	8.9	9.0	9.1	9.1	9.3	8.1%
Switzerland	6.3	6.4	6.4	6.5	6.8	7.1	7.2	7.5	7.6	7.6	7.7	13.4%
Turkey	36.2	40.1	44.4	50.3	55.1	59.8	64.3	68.6	69.4	70.3	71.1	29.0%
United Kingdom	55.9	56.2	56.3	56.6	57.2	58.0	58.9	60.2	60.6	61.0	61.4	7.2%
OECD Europe	448.4	460.9	473.8	484.9	496.5	508.5	518.3	533.5	536.5	539.9	543.3	9.4%
<i>European Union - 27</i>	..	..	..	..	472.9	478.7	482.9	492.1	494.1	496.4	498.7	5.5%

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	2 877.4	3 144.5	3 473.6	3 830.5	4 222.5	4 592.3	4 947.2	5 292.4	5 360.7	5 428.6	5 498.1	30.2%
Algeria	14.2	16.0	18.8	22.1	25.3	28.3	30.5	32.9	33.4	33.9	34.4	35.9%
Angola	6.2	6.8	7.9	9.3	10.7	12.5	14.3	16.6	17.1	17.6	18.0	69.0%
Benin	2.8	3.1	3.6	4.1	4.8	5.7	6.7	7.9	8.1	8.4	8.7	80.6%
Botswana	..	..	..	1.2	1.4	1.6	1.7	1.8	1.9	1.9	1.9	39.4%
Cameroon	7.0	7.8	9.1	10.5	12.2	14.1	15.9	17.8	18.2	18.5	18.9	54.4%
Congo	1.4	1.6	1.8	2.1	2.4	2.8	3.0	3.4	3.5	3.6	3.6	47.8%
Dem. Rep. of Congo	21.2	24.0	28.1	32.4	37.9	45.3	50.7	58.7	60.6	62.4	64.2	69.2%
Côte d'Ivoire	5.5	6.6	8.4	10.5	12.6	15.0	17.3	19.2	19.7	20.1	20.6	63.3%
Egypt	36.4	39.6	44.4	50.7	57.8	63.9	70.2	77.2	78.6	80.1	81.5	41.1%
Eritrea	..	..	..	..	..	3.2	3.7	4.5	4.7	4.8	5.0	..
Ethiopia	31.7	35.1	37.9	43.9	51.5	57.0	65.5	74.7	76.6	78.6	80.7	56.9%
Gabon	0.5	0.6	0.7	0.8	0.9	1.1	1.2	1.4	1.4	1.4	1.4	56.4%
Ghana	9.0	10.0	11.0	13.0	15.0	17.2	19.5	21.9	22.4	22.9	23.4	56.0%
Kenya	11.7	13.5	16.3	19.7	23.4	27.4	31.3	35.6	36.6	37.5	38.5	64.3%
Libyan Arab Jamahiriya	2.1	2.5	3.1	3.9	4.4	4.8	5.3	5.9	6.0	6.2	6.3	43.8%
Morocco	15.4	17.1	19.4	21.8	24.2	26.4	28.5	30.1	30.5	30.9	31.2	29.2%
Mozambique	9.7	10.6	12.1	13.3	13.5	15.9	18.2	20.5	21.0	21.4	21.8	60.8%
Namibia	..	..	..	..	..	1.7	1.9	2.0	2.0	2.1	2.1	..
Nigeria	55.1	61.2	71.1	81.6	94.5	109.0	124.8	141.4	144.7	148.0	151.3	60.2%
Senegal	4.3	4.9	5.6	6.5	7.5	8.7	9.9	11.3	11.6	11.9	12.2	62.0%
South Africa	22.6	24.7	27.6	31.3	35.2	39.1	44.0	46.9	47.4	47.9	48.7	38.3%
Sudan	15.5	17.5	20.5	24.1	27.1	30.8	34.9	38.7	39.5	40.4	41.3	52.6%
United Rep. of Tanzania	14.0	16.0	18.7	21.8	25.5	30.0	34.1	39.0	40.1	41.3	42.5	66.9%
Togo	2.2	2.4	2.8	3.3	3.9	4.4	5.2	6.0	6.1	6.3	6.5	64.5%
Tunisia	5.2	5.6	6.4	7.3	8.2	9.0	9.6	10.0	10.1	10.2	10.3	26.6%
Zambia	4.3	4.9	5.8	6.8	7.9	9.1	10.5	11.7	12.0	12.3	12.6	59.5%
Zimbabwe	5.4	6.2	7.3	8.8	10.5	11.7	12.5	12.5	12.5	12.4	12.5	19.1%
Other Africa	68.6	75.7	88.5	99.5	115.4	125.7	146.4	169.2	174.1	179.0	184.1	59.5%
Africa	371.8	413.9	476.7	550.3	633.6	721.4	817.2	918.8	940.4	961.9	984.3	55.3%
Bahrain	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.7	0.7	0.8	0.8	55.6%
Islamic Rep. of Iran	29.4	33.2	39.1	47.1	54.4	59.0	63.9	69.1	70.1	71.0	72.0	32.3%
Iraq	9.7	11.1	13.2	15.7	18.1	19.6	22.7	26.1	26.8	27.5	28.2	55.6%
Israel	3.1	3.5	3.9	4.3	4.7	5.5	6.3	6.9	7.1	7.2	7.3	56.3%
Jordan	1.6	1.8	2.2	2.6	3.2	4.2	4.8	5.4	5.5	5.7	5.9	86.3%
Kuwait	0.8	1.0	1.4	1.7	2.1	1.8	2.2	2.5	2.6	2.7	2.7	28.4%
Lebanon	2.5	2.7	2.8	2.9	3.0	3.5	3.8	4.0	4.1	4.1	4.1	39.2%
Oman	0.8	0.9	1.2	1.5	1.8	2.2	2.4	2.6	2.7	2.7	2.8	51.1%
Qatar	0.1	0.2	0.2	0.4	0.5	0.5	0.6	0.9	1.0	1.1	1.3	174.3%
Saudi Arabia	6.0	7.3	9.6	12.9	16.4	18.5	20.7	23.1	23.7	24.2	24.6	50.5%
Syrian Arab Republic	6.6	7.5	9.0	10.8	12.7	14.6	16.5	19.1	19.8	20.5	21.2	66.9%
United Arab Emirates	0.3	0.5	1.0	1.4	1.9	2.4	3.2	4.1	4.2	4.4	4.5	140.2%
Yemen	6.5	7.1	8.4	10.1	12.3	15.5	18.2	21.1	21.7	22.4	23.1	87.2%
Middle East	67.5	77.1	92.3	111.8	131.6	147.9	165.9	185.7	190.0	194.2	198.5	50.9%
Albania	2.2	2.4	2.7	3.0	3.3	3.1	3.1	3.1	3.1	3.1	3.1	-4.4%
Bosnia and Herzegovina *	..	..	..	..	4.3	3.3	3.7	3.8	3.8	3.8	3.8	-12.4%
Bulgaria	8.5	8.7	8.9	8.9	8.7	8.4	8.1	7.7	7.7	7.7	7.6	-12.6%
Croatia *	..	..	..	..	4.8	4.7	4.4	4.4	4.4	4.4	4.4	-7.2%
Cyprus	0.6	0.5	0.5	0.5	0.6	0.7	0.7	0.8	0.8	0.8	0.8	37.6%
Gibraltar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.4%
FYR of Macedonia *	..	..	..	..	1.9	2.0	2.0	2.0	2.0	2.0	2.0	6.8%
Malta	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	14.2%
Romania	20.5	21.2	22.2	22.7	23.2	22.7	22.4	21.6	21.6	21.5	21.5	-7.3%
Serbia *	..	..	..	..	10.2	10.4	8.2	7.4	7.4	7.4	7.4	-28.2%
Slovenia *	..	..	..	..	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.3%
Former Yugoslavia *	20.3	21.0	21.8	22.5	..	..	..	..	..	..	..	..
Non-OECD Europe	52.5	54.2	56.4	58.0	59.4	57.6	55.0	53.4	53.3	53.2	53.1	-10.6%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

Population

millions

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	3.5	3.2	3.1	3.1	3.1	3.1	3.1	-13.2%
Azerbaijan	..	..	..	..	7.2	7.7	8.0	8.4	8.5	8.6	8.7	21.2%
Belarus	..	..	..	..	10.2	10.2	10.0	9.8	9.7	9.7	9.7	-5.0%
Estonia	..	..	..	..	1.6	1.4	1.4	1.3	1.3	1.3	1.3	-15.6%
Georgia	..	..	..	..	5.5	5.0	4.7	4.5	4.4	4.4	4.4	-20.1%
Kazakhstan	..	..	..	..	16.3	15.8	14.9	15.1	15.3	15.5	15.7	-4.1%
Kyrgyzstan	..	..	..	..	4.4	4.6	4.9	5.1	5.2	5.2	5.3	19.3%
Latvia	..	..	..	..	2.7	2.5	2.4	2.3	2.3	2.3	2.3	-15.2%
Lithuania	..	..	..	..	3.7	3.6	3.5	3.4	3.4	3.4	3.4	-9.2%
Republic of Moldova	..	..	..	..	4.4	4.3	4.1	3.8	3.7	3.7	3.6	-16.8%
Russian Federation	..	..	..	..	148.0	148.4	146.6	143.1	142.5	142.1	141.8	-4.2%
Tajikistan	..	..	..	..	5.3	5.8	6.2	6.5	6.6	6.7	6.8	28.9%
Turkmenistan	..	..	..	..	3.7	4.2	4.5	4.8	4.9	5.0	5.0	37.1%
Ukraine	..	..	..	..	51.9	51.5	49.2	47.1	46.8	46.5	46.3	-10.9%
Uzbekistan	..	..	..	..	20.5	22.8	24.7	26.2	26.5	26.9	27.3	33.2%
Former Soviet Union *	244.9	254.5	265.9	277.8	288.8	291.1	288.1	284.6	284.2	284.3	284.6	-1.5%
Argentina	24.4	26.0	28.1	30.3	32.6	34.8	36.9	38.7	39.1	39.5	39.9	22.4%
Bolivia	4.3	4.8	5.4	6.0	6.7	7.5	8.3	9.2	9.4	9.5	9.7	45.2%
Brazil	98.4	108.1	121.6	136.1	149.6	161.7	174.2	186.1	188.2	190.1	192.0	28.3%
Chile	9.8	10.4	11.2	12.1	13.2	14.4	15.4	16.3	16.4	16.6	16.8	27.2%
Colombia	22.8	24.6	27.2	30.1	33.2	36.5	39.8	42.9	43.4	44.0	44.5	34.3%
Costa Rica	1.9	2.1	2.3	2.7	3.1	3.5	3.9	4.3	4.4	4.5	4.5	47.2%
Cuba	8.9	9.4	9.8	10.1	10.6	10.9	11.1	11.3	11.3	11.3	11.2	6.1%
Dominican Republic	4.7	5.3	5.9	6.6	7.3	8.0	8.7	9.5	9.6	9.7	9.8	34.9%
Ecuador	6.1	6.9	8.0	9.1	10.3	11.4	12.3	13.1	13.2	13.3	13.5	31.2%
El Salvador	3.8	4.2	4.7	5.0	5.3	5.7	5.9	6.1	6.1	6.1	6.1	15.1%
Guatemala	5.6	6.2	7.0	7.9	8.9	10.0	11.2	12.7	13.0	13.3	13.7	53.5%
Haiti	4.8	5.1	5.7	6.4	7.1	7.8	8.6	9.3	9.4	9.6	9.8	37.6%
Honduras	2.8	3.1	3.6	4.2	4.9	5.6	6.2	6.8	7.0	7.1	7.2	48.1%
Jamaica	1.9	2.0	2.1	2.3	2.4	2.5	2.6	2.7	2.7	2.7	2.7	12.5%
Netherlands Antilles	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.6%
Nicaragua	2.5	2.8	3.3	3.7	4.1	4.7	5.1	5.5	5.5	5.6	5.7	37.1%
Panama	1.5	1.7	1.9	2.2	2.4	2.7	3.0	3.2	3.3	3.3	3.4	40.8%
Paraguay	2.4	2.7	3.1	3.6	4.2	4.8	5.3	5.9	6.0	6.1	6.2	47.6%
Peru	13.6	15.2	17.3	19.5	21.8	23.9	26.0	27.8	28.2	28.5	28.8	32.4%
Trinidad and Tobago	1.0	1.0	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	9.3%
Uruguay	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.3	3.3	3.3	3.3	7.3%
Venezuela	11.1	12.7	15.1	17.5	19.8	22.0	24.3	26.6	27.0	27.5	27.9	41.5%
Other Latin America	2.6	2.7	2.8	2.9	3.0	3.2	3.3	3.6	3.6	3.6	3.6	21.4%
Latin America	237.7	260.0	290.3	322.7	354.8	386.3	417.1	446.2	451.7	456.9	462.0	30.2%
Bangladesh	71.0	79.0	90.4	103.0	115.6	128.1	140.8	153.1	155.5	157.8	160.0	38.4%
Brunei Darussalam	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	54.5%
Cambodia	..	..	..	..	..	11.4	12.8	14.0	14.2	14.4	14.7	..
Chinese Taipei	14.9	16.1	17.8	19.3	20.3	21.3	22.2	22.7	22.8	22.9	22.9	13.0%
India	560.3	613.5	687.3	765.1	849.5	932.2	1 015.9	1 094.6	1 109.8	1 124.8	1 140.0	34.2%
Indonesia	120.4	132.6	148.3	163.0	178.2	192.8	206.3	220.6	223.0	225.6	228.2	28.1%
DPR of Korea	14.6	16.1	17.2	18.7	20.1	21.7	22.9	23.6	23.7	23.8	23.9	18.4%
Malaysia	11.1	12.3	13.8	15.7	18.1	20.6	23.3	25.7	26.1	26.6	27.0	49.1%
Mongolia	..	..	..	1.9	2.1	2.3	2.4	2.6	2.6	2.6	2.6	25.0%
Myanmar	27.0	29.8	33.3	36.8	40.1	43.1	45.9	48.0	48.4	48.8	49.2	22.5%
Nepal	12.4	13.5	15.2	17.0	19.1	21.7	24.4	27.1	27.6	28.1	28.6	49.5%
Pakistan	62.5	71.0	82.7	94.8	108.0	122.4	138.1	155.8	159.0	162.5	166.0	53.8%
Philippines	37.6	42.0	48.1	55.0	62.4	70.0	77.7	85.5	87.1	88.7	90.3	44.7%
Singapore	2.1	2.3	2.4	2.7	3.0	3.5	4.0	4.3	4.4	4.6	4.8	58.8%
Sri Lanka	12.6	13.7	14.9	16.0	17.1	18.1	18.7	19.7	19.9	20.0	20.2	17.8%
Thailand	38.2	42.2	47.3	52.5	56.7	60.1	62.3	65.9	66.5	67.0	67.4	18.9%
Vietnam	43.7	48.0	53.7	58.9	66.2	73.0	77.6	83.1	84.1	85.2	86.2	30.2%
Other Asia	29.1	31.4	33.0	32.6	36.5	34.5	39.0	46.7	48.2	49.3	50.5	38.5%
Asia	1 057.8	1 163.8	1 305.6	1 453.4	1 613.4	1 776.9	1 934.7	2 093.1	2 123.3	2 153.0	2 183.0	35.3%
People's Rep. of China	841.1	916.4	981.2	1 051.0	1 135.2	1 204.9	1 262.6	1 303.7	1 311.0	1 318.3	1 325.6	16.8%
Hong Kong, China	4.0	4.5	5.1	5.5	5.7	6.2	6.7	6.8	6.9	6.9	7.0	22.3%
China	845.2	920.9	986.3	1 056.5	1 140.9	1 211.0	1 269.3	1 310.5	1 317.9	1 325.2	1 332.6	16.8%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	60.8	60.5	59.7	57.4	57.1	56.3	56.0	56.7	57.1	57.4	57.2	0.3%
<i>Annex I Parties</i>	..	..	..	..	59.5	57.4	57.0	56.3	56.3	56.5	55.7	-6.4%
<i>Annex II Parties</i>	66.0	64.2	62.3	59.5	58.4	56.6	56.5	56.2	56.0	56.1	55.3	-5.2%
<i>North America</i>	64.0	62.2	60.9	60.1	59.6	58.2	58.9	58.4	58.0	58.0	57.6	-3.4%
<i>Europe</i>	69.0	66.4	64.5	58.6	55.9	53.3	51.7	51.1	51.3	51.0	50.1	-10.3%
<i>Pacific</i>	67.1	67.2	62.4	59.8	59.7	57.7	57.6	59.8	59.2	60.5	58.8	-1.6%
<i>Annex I EIT</i>	..	..	..	..	62.6	60.7	59.0	56.6	57.4	57.4	56.7	-9.5%
<i>Non-Annex I Parties</i>	..	..	..	..	51.4	53.5	53.3	56.1	56.9	57.5	57.8	12.5%
<i>Annex I Kyoto Parties</i>	..	..	..	..	58.8	56.2	54.9	54.2	54.4	54.7	53.7	-8.7%
Non-OECD Total	50.5	53.3	54.5	53.1	54.2	54.4	53.8	56.0	56.9	57.4	57.7	6.3%
OECD Total	66.4	64.7	62.9	60.5	58.9	57.2	56.9	56.4	56.3	56.4	55.6	-5.5%
Canada	57.4	54.3	52.9	49.8	49.5	48.1	50.6	49.0	48.3	50.1	49.3	-0.3%
Mexico	53.9	56.0	53.3	55.3	52.2	53.5	57.0	54.7	55.2	56.6	54.0	3.5%
United States	64.6	63.0	61.7	61.2	60.7	59.4	59.9	59.4	59.1	58.9	58.5	-3.6%
OECD N. America	63.7	62.0	60.5	59.8	59.2	58.0	58.8	58.1	57.8	57.9	57.3	-3.2%
Australia	66.7	71.2	71.4	72.5	72.0	73.7	74.9	77.7	76.9	74.3	73.0	1.3%
Japan	67.7	67.0	61.1	57.8	57.9	55.2	54.5	56.0	55.4	57.6	55.5	-4.2%
Korea	73.3	75.0	72.1	68.4	58.8	59.2	54.2	53.2	53.3	52.7	52.8	-10.3%
New Zealand	47.5	46.5	43.6	41.8	41.3	40.3	42.7	49.2	48.8	46.5	47.0	13.6%
OECD Pacific	67.5	67.7	63.2	60.7	59.6	58.0	56.8	58.2	57.7	58.5	57.2	-4.0%
Austria	61.8	59.5	57.4	56.2	54.4	53.1	51.6	52.7	51.1	49.9	49.8	-8.5%
Belgium	70.4	65.2	64.2	55.2	53.4	51.2	48.4	45.8	45.1	44.4	45.2	-15.3%
Czech Republic	79.4	83.5	84.4	84.0	76.0	72.2	72.3	63.6	62.9	63.7	62.5	-17.7%
Denmark	71.0	71.7	78.1	74.9	69.5	71.3	64.9	61.1	66.1	62.2	60.8	-12.4%
Finland	52.3	53.8	53.6	44.9	45.8	46.3	40.3	38.8	42.9	41.9	38.3	-16.3%
France	65.1	62.3	57.5	42.2	37.6	35.7	35.7	34.3	34.0	33.8	33.0	-12.2%
Germany	76.6	74.3	70.6	67.8	64.6	61.6	58.6	57.2	57.6	57.5	57.3	-11.4%
Greece	69.2	70.3	72.3	74.3	78.1	76.6	76.9	75.0	74.4	77.3	73.3	-6.1%
Hungary	75.7	73.7	70.5	64.8	55.6	52.9	51.8	48.8	48.8	48.4	47.9	-14.0%
Iceland	37.0	34.7	27.7	21.8	21.5	20.7	16.5	15.0	12.8	11.4	10.0	-53.5%
Ireland	77.2	75.8	75.1	73.0	71.3	72.5	71.2	72.0	73.0	69.8	69.8	-2.2%
Italy	66.4	65.4	65.7	64.2	64.8	61.4	59.3	59.4	60.1	58.8	58.4	-9.9%
Luxembourg	90.7	76.6	80.0	77.4	73.3	61.9	57.8	62.5	62.0	60.7	60.3	-17.7%
Netherlands	60.8	57.0	61.9	60.7	56.7	57.8	56.1	55.4	55.5	52.8	53.3	-5.9%
Norway	42.2	39.4	36.5	32.5	32.2	33.5	31.0	32.4	33.0	33.1	30.3	-5.9%
Poland	79.5	78.4	77.9	80.3	79.6	79.6	78.1	75.9	74.8	74.9	72.9	-8.5%
Portugal	55.0	56.3	56.9	53.7	56.0	57.0	57.5	56.6	54.4	52.4	51.8	-7.5%
Slovak Republic	65.4	62.4	66.6	62.7	63.5	54.9	50.3	48.3	48.0	49.2	47.3	-25.6%
Spain	67.3	65.0	66.3	59.1	54.6	55.3	55.6	57.2	56.1	57.1	54.7	0.2%
Sweden	54.6	48.6	43.3	29.7	26.7	27.3	26.5	23.3	22.9	22.1	22.1	-17.2%
Switzerland	56.8	51.0	46.8	44.8	40.4	41.2	40.4	41.1	39.0	39.2	39.1	-3.3%
Turkey	50.6	52.9	53.9	57.5	57.5	59.2	62.7	61.2	61.5	63.3	63.9	11.2%
United Kingdom	71.4	69.4	68.7	64.8	63.7	57.1	56.1	57.2	58.2	59.2	58.5	-8.2%
OECD Europe	69.9	67.7	66.2	61.3	58.2	55.6	54.0	53.1	53.3	53.2	52.3	-10.0%
<i>European Union - 27</i>	..	..	..	..	59.2	56.1	54.3	53.4	53.6	53.4	52.5	-11.3%

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	50.5	53.3	54.5	53.1	54.2	54.4	53.8	56.0	56.9	57.4	57.7	6.3%
Algeria	59.6	60.7	60.6	58.1	55.6	55.1	55.2	58.2	56.3	55.6	56.8	2.1%
Angola	10.3	11.6	14.0	13.8	16.3	14.8	16.4	18.5	21.0	20.6	23.0	41.3%
Benin	6.5	8.8	6.9	7.2	3.6	2.8	17.0	23.5	25.8	25.9	26.0	613.0%
Botswana	..	..	..	42.5	55.6	53.2	54.5	54.6	54.1	52.6	51.0	-8.3%
Cameroon	6.4	8.2	10.8	13.0	12.8	10.8	10.6	10.0	11.0	15.2	14.4	12.6%
Congo	27.1	27.6	29.2	25.4	20.9	16.0	16.6	18.5	22.7	22.7	25.9	24.0%
Dem. Rep. of Congo	9.0	8.2	8.8	7.7	6.0	3.8	2.4	2.7	2.8	2.9	3.0	-49.3%
Côte d'Ivoire	23.2	24.3	22.5	19.6	14.6	15.1	21.7	14.5	14.6	13.2	15.0	3.3%
Egypt	62.8	63.0	66.7	60.8	59.4	56.8	58.3	59.6	59.9	59.9	58.8	-1.1%
Eritrea	..	..	..	..	..	18.5	20.4	18.8	17.8	16.9	15.9	..
Ethiopia	3.7	3.0	3.1	2.7	3.6	3.4	4.1	5.4	5.7	4.7	5.1	45.0%
Gabon	10.5	13.8	22.2	29.7	18.2	23.4	22.5	29.0	28.5	32.6	34.4	88.5%
Ghana	15.4	15.3	13.5	11.9	12.2	12.2	15.8	18.0	19.7	20.6	18.5	51.4%
Kenya	14.2	13.4	14.1	12.5	12.0	10.7	11.6	10.6	11.5	11.4	11.4	-5.0%
Libyan Arab Jamahiriya	56.8	59.8	64.3	53.9	57.7	53.1	57.2	57.8	57.6	57.8	58.8	2.0%
Morocco	67.2	69.4	68.4	70.5	67.6	70.4	66.0	70.5	69.9	67.4	67.1	-0.7%
Mozambique	10.0	8.4	8.2	5.6	4.4	4.3	4.4	4.3	4.4	5.1	5.0	13.6%
Namibia	..	..	..	..	..	47.7	44.0	47.9	48.8	48.7	53.6	..
Nigeria	3.9	6.7	12.2	12.6	9.9	9.1	10.5	11.6	11.1	10.8	11.2	14.0%
Senegal	23.3	27.6	30.5	32.3	28.5	31.7	35.8	39.7	38.7	42.0	42.4	48.7%
South Africa	92.0	92.9	78.7	63.3	66.9	63.0	64.6	62.8	61.6	60.9	59.9	-10.5%
Sudan	11.1	10.5	10.6	10.6	12.4	9.1	9.7	15.4	17.3	19.2	18.7	51.5%
United Rep. of Tanzania	4.8	4.7	4.7	4.2	4.2	5.5	4.6	7.2	7.5	7.1	7.3	74.4%
Togo	11.2	9.6	9.8	7.1	10.8	8.8	10.8	9.8	9.0	8.7	10.3	-4.5%
Tunisia	53.1	52.7	57.3	54.9	58.3	58.4	58.9	56.7	54.9	54.9	54.0	-7.5%
Zambia	23.4	26.9	17.8	13.6	11.5	8.4	6.5	7.0	6.6	4.7	5.2	-55.1%
Zimbabwe	31.8	29.0	29.3	30.9	41.1	36.0	30.7	25.5	24.5	23.2	22.1	-46.3%
Other Africa	6.9	7.7	9.7	7.8	8.5	8.8	8.7	9.5	9.5	10.0	10.0	17.7%
Africa	33.0	35.6	35.5	33.5	33.6	32.3	32.6	33.2	33.1	32.8	32.4	-3.6%
Bahrain	51.1	59.5	62.9	59.7	64.2	56.3	57.5	57.8	58.2	57.8	57.7	-10.1%
Islamic Rep. of Iran	62.8	68.7	58.4	65.3	63.0	64.4	62.3	59.6	60.1	59.4	59.7	-5.2%
Iraq	66.4	65.6	73.2	66.2	69.8	66.0	77.0	61.6	61.9	65.9	68.4	-2.0%
Israel	59.9	58.0	59.8	77.3	69.0	70.5	71.7	71.0	70.6	71.2	68.5	-0.7%
Jordan	64.8	67.5	66.9	67.7	67.4	67.5	69.3	64.1	63.8	63.6	62.3	-7.6%
Kuwait	95.2	94.8	49.6	63.3	74.3	61.0	59.8	64.5	64.5	63.3	63.1	-15.1%
Lebanon	65.3	68.0	67.5	68.5	67.9	69.5	68.7	69.4	68.2	67.9	69.4	2.2%
Oman	26.7	71.5	46.3	61.7	61.1	56.2	58.4	61.7	53.0	53.0	50.7	-17.0%
Qatar	57.3	56.1	53.4	49.1	50.2	52.5	50.6	50.6	52.1	49.8	53.4	6.4%
Saudi Arabia	42.0	61.5	76.6	65.9	65.2	56.3	57.3	56.1	56.5	57.5	57.5	-11.8%
Syrian Arab Republic	61.7	70.9	70.7	65.1	65.0	65.7	62.7	65.1	65.3	65.3	66.0	1.5%
United Arab Emirates	57.8	60.2	63.7	63.4	62.0	61.3	61.0	60.9	60.9	60.4	60.1	-3.2%
Yemen	38.7	60.0	64.6	66.1	61.1	65.3	66.6	68.4	68.7	68.1	70.0	14.6%
Middle East	62.4	67.7	64.1	65.1	64.6	61.7	61.8	59.8	59.8	59.8	60.0	-7.0%
Albania	54.5	54.0	59.4	63.5	56.0	33.5	42.8	47.0	45.8	44.2	44.1	-21.3%
Bosnia and Herzegovina *	..	..	..	..	80.5	52.2	74.9	74.1	76.0	76.6	77.9	-3.2%
Bulgaria	78.9	74.2	70.5	63.2	62.6	55.2	53.8	55.0	55.1	59.7	58.9	-6.0%
Croatia *	..	..	..	..	57.2	53.6	54.1	55.6	55.4	56.4	55.1	-3.7%
Cyprus	72.2	70.8	71.9	72.3	67.4	71.5	70.1	75.3	73.0	72.0	69.9	3.7%
Gibraltar	72.1	72.4	73.6	72.8	72.6	72.9	72.9	73.0	73.0	73.0	73.0	0.6%
FYR of Macedonia *	..	..	..	..	82.1	78.1	75.4	72.7	72.0	72.0	69.0	-16.0%
Malta	73.5	73.6	73.9	79.6	78.6	79.2	74.5	74.8	74.8	74.9	74.7	-5.0%
Romania	65.1	64.8	64.5	63.7	64.1	60.4	56.9	57.2	56.9	55.8	54.5	-14.9%
Serbia *	..	..	..	..	75.8	77.4	76.3	71.9	73.1	75.3	73.3	-3.3%
Slovenia *	..	..	..	..	52.3	52.4	52.5	51.1	51.9	51.7	51.6	-1.3%
Former Yugoslavia *	68.9	70.4	62.1	70.7	..	..	..	..	..	..	..	..
Non-OECD Europe	69.0	68.1	65.1	65.7	65.6	60.8	60.1	60.0	60.1	61.1	60.1	-8.4%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions / TPEStonnes CO₂ / terajoule

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	63.5	50.0	40.6	39.3	38.9	40.2	41.9	-34.0%
Azerbaijan	..	..	..	..	58.4	59.0	61.3	57.2	53.2	54.0	52.3	-10.4%
Belarus	..	..	..	..	65.0	59.2	56.8	55.2	55.2	54.5	54.5	-16.2%
Estonia	..	..	..	..	89.8	76.4	73.9	77.9	73.6	81.9	77.9	-13.2%
Georgia	..	..	..	..	56.6	45.3	36.4	35.9	37.5	39.0	37.6	-33.5%
Kazakhstan	..	..	..	..	77.6	76.7	73.1	70.2	69.9	68.4	67.9	-12.5%
Kyrgyzstan	..	..	..	..	71.6	44.3	44.3	45.3	43.1	47.5	49.4	-31.0%
Latvia	..	..	..	..	56.7	46.0	43.9	40.9	42.1	42.6	42.2	-25.6%
Lithuania	..	..	..	..	49.1	38.7	37.5	37.6	38.5	37.3	37.1	-24.5%
Republic of Moldova	..	..	..	..	73.1	59.4	54.4	53.1	52.5	53.7	53.6	-26.6%
Russian Federation	..	..	..	..	59.2	59.1	58.1	55.6	56.3	56.1	55.4	-6.3%
Tajikistan	..	..	..	..	49.0	26.2	24.1	24.1	25.5	29.1	29.0	-40.8%
Turkmenistan	..	..	..	..	56.7	59.2	59.6	59.8	59.9	60.0	60.0	5.8%
Ukraine	..	..	..	..	65.3	57.3	52.1	51.1	54.0	54.6	54.3	-16.8%
Uzbekistan	..	..	..	..	61.7	57.0	55.3	55.1	54.9	55.1	54.4	-12.0%
Former Soviet Union *	62.0	65.3	65.8	61.2	61.6	59.3	57.4	55.5	56.4	56.3	55.8	-9.4%
Argentina	58.9	57.1	54.8	51.2	52.0	52.3	54.5	53.8	52.5	54.2	54.4	4.5%
Bolivia	49.4	50.8	42.4	41.0	46.9	49.2	36.9	52.9	53.0	51.5	54.0	15.1%
Brazil	31.2	36.0	37.8	31.0	33.1	35.6	38.1	36.1	35.4	35.0	35.0	5.9%
Chile	57.2	53.1	53.5	48.5	55.2	51.4	49.5	50.6	50.7	55.8	55.4	0.4%
Colombia	45.3	43.9	43.6	43.7	44.3	48.7	52.3	48.6	45.9	46.4	46.6	5.1%
Costa Rica	26.5	31.7	34.1	28.6	30.8	44.7	35.6	31.7	31.2	31.6	32.1	4.4%
Cuba	40.3	46.6	45.9	50.8	39.9	51.4	52.4	63.7	59.0	62.9	60.4	51.4%
Dominican Republic	35.2	40.0	43.6	40.4	44.7	46.3	53.9	54.3	56.7	57.4	57.2	28.1%
Ecuador	38.2	45.4	50.4	50.1	52.6	54.5	55.1	52.2	55.4	54.1	59.8	13.8%
El Salvador	17.9	21.0	15.9	15.3	20.9	33.4	31.6	31.6	30.2	30.1	28.5	36.1%
Guatemala	19.9	21.8	26.6	20.6	17.8	26.8	29.7	33.1	32.5	33.7	31.4	76.7%
Haiti	5.9	5.7	7.0	10.0	14.5	12.8	16.7	18.3	18.3	19.9	20.1	39.3%
Honduras	19.2	20.4	21.5	19.8	21.4	29.9	35.4	41.3	38.0	41.1	40.3	88.0%
Jamaica	65.5	66.0	68.2	64.3	61.5	62.2	62.3	68.5	65.0	61.6	65.0	5.7%
Netherlands Antilles	63.0	63.1	53.2	60.9	44.9	51.3	48.9	51.6	51.9	49.5	49.1	9.2%
Nicaragua	28.4	29.4	27.9	22.2	20.9	25.4	31.0	29.5	27.7	30.3	28.1	34.3%
Panama	36.2	45.5	49.3	40.3	39.4	49.4	43.6	51.8	53.9	54.9	53.8	36.6%
Paraguay	10.0	11.2	15.5	14.8	14.9	21.0	20.2	20.8	21.1	21.0	20.1	35.4%
Peru	40.7	42.5	43.6	41.1	47.1	51.7	51.9	50.4	51.1	51.5	56.6	20.1%
Trinidad and Tobago	56.0	60.4	49.7	45.2	45.5	46.5	43.7	45.1	46.3	46.0	46.7	2.7%
Uruguay	51.6	53.3	50.2	37.3	39.8	42.0	41.2	42.2	46.0	43.2	43.5	9.4%
Venezuela	63.6	60.1	62.4	57.6	57.6	54.8	53.7	54.8	56.3	53.7	54.3	-5.8%
Other Latin America	39.5	43.1	40.8	56.4	61.0	61.4	62.0	63.1	63.0	62.6	62.6	2.6%
Latin America	43.5	44.4	45.0	40.7	42.0	44.1	45.2	44.5	44.2	44.1	44.4	5.6%
Bangladesh	13.4	16.5	20.5	21.2	25.4	30.8	32.5	36.5	36.9	37.9	39.7	56.1%
Brunei Darussalam	53.7	45.4	46.5	39.3	45.6	48.6	45.3	47.9	55.3	51.3	49.3	8.2%
Cambodia	..	..	..	..	..	9.9	14.5	18.7	19.5	20.6	21.0	..
Chinese Taipei	73.4	70.6	61.7	50.1	56.8	59.0	61.6	61.0	61.5	60.0	59.8	5.4%
India	30.5	32.3	33.7	39.0	44.3	48.5	51.0	51.6	53.0	53.7	54.9	24.1%
Indonesia	16.6	21.6	28.8	29.8	32.3	34.4	41.2	43.2	44.6	45.7	46.3	43.4%
DPR of Korea	83.1	82.3	83.0	83.8	82.0	81.3	83.1	82.7	83.2	81.0	81.8	-0.2%
Malaysia	51.5	53.7	48.6	51.4	53.1	50.5	56.1	58.8	59.7	58.7	59.4	11.8%
Mongolia	..	..	..	88.5	88.5	88.8	89.0	88.4	87.4	87.1	86.4	-2.3%
Myanmar	13.6	11.3	12.9	12.6	8.9	13.7	15.5	20.0	18.6	19.0	17.9	100.2%
Nepal	1.2	1.9	2.7	2.6	3.6	6.2	9.0	7.9	8.0	8.0	8.1	122.5%
Pakistan	23.3	24.6	25.3	29.1	32.8	35.6	36.7	37.1	38.3	39.6	38.6	17.5%
Philippines	36.8	39.3	36.1	28.9	34.3	40.8	40.8	43.4	41.1	42.9	42.1	22.5%
Singapore	52.1	54.1	59.0	57.4	60.0	48.1	56.4	44.6	44.7	53.8	57.1	-4.8%
Sri Lanka	17.4	15.7	19.6	17.1	16.2	22.2	30.5	35.6	31.2	33.5	32.7	101.5%
Thailand	30.1	30.1	37.1	38.4	44.7	54.0	52.7	52.6	51.9	51.8	51.1	14.5%
Vietnam	22.1	21.5	18.0	19.0	17.0	22.3	28.7	38.1	39.0	39.9	41.4	143.9%
Other Asia	45.3	46.0	53.6	40.6	40.1	32.2	37.5	43.7	42.3	40.3	41.2	2.7%
Asia	32.5	34.5	37.1	39.2	42.5	45.1	48.0	49.1	50.0	50.5	51.2	20.6%
People's Rep. of China	48.8	51.9	56.1	58.8	61.2	68.1	66.3	71.4	72.3	73.4	73.4	20.0%
Hong Kong, China	72.9	71.1	75.0	79.7	90.4	80.7	71.1	76.9	74.8	72.3	71.4	-21.0%
China	49.0	52.0	56.2	59.0	61.5	68.3	66.4	71.5	72.4	73.4	73.4	19.4%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	1.09	1.05	1.00	0.91	0.87	0.80	0.73	0.74	0.73	0.73	0.73	-16.1%
<i>Annex I Parties</i>	..	..	..	..	0.70	0.61	0.55	0.51	0.49	0.48	0.47	-33.0%
<i>Annex II Parties</i>	0.83	0.76	0.68	0.58	0.52	0.49	0.45	0.42	0.41	0.40	0.39	-25.3%
<i>North America</i>	1.11	1.02	0.92	0.76	0.70	0.65	0.59	0.53	0.51	0.50	0.49	-30.1%
<i>Europe</i>	0.75	0.67	0.63	0.54	0.46	0.43	0.38	0.36	0.35	0.34	0.33	-29.3%
<i>Pacific</i>	0.44	0.43	0.36	0.32	0.30	0.30	0.30	0.30	0.29	0.29	0.28	-9.2%
<i>Annex I EIT</i>	..	..	..	..	4.72	4.47	3.57	2.84	2.74	2.57	2.44	-48.3%
<i>Non-Annex I Parties</i>	..	..	..	..	1.48	1.43	1.29	1.36	1.35	1.33	1.34	-9.9%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.70	0.58	0.52	0.49	0.48	0.47	0.46	-34.6%
Non-OECD Total	2.04	2.08	2.05	2.08	2.21	1.90	1.65	1.65	1.63	1.59	1.58	-28.8%
OECD Total	0.86	0.79	0.72	0.62	0.55	0.52	0.48	0.45	0.43	0.43	0.41	-24.9%
Canada	1.18	1.10	1.04	0.85	0.80	0.79	0.74	0.68	0.64	0.66	0.63	-20.4%
Mexico	0.47	0.51	0.56	0.60	0.59	0.60	0.54	0.56	0.54	0.55	0.53	-9.3%
United States	1.11	1.02	0.91	0.75	0.69	0.64	0.58	0.52	0.50	0.49	0.48	-30.8%
OECD N. America	1.08	0.99	0.89	0.75	0.69	0.65	0.58	0.53	0.51	0.51	0.49	-29.1%
Australia	0.88	0.99	0.99	0.91	0.92	0.86	0.85	0.82	0.81	0.77	0.77	-16.7%
Japan	0.40	0.38	0.31	0.27	0.26	0.26	0.25	0.25	0.24	0.24	0.22	-13.7%
Korea	0.76	0.84	0.97	0.82	0.78	0.83	0.79	0.70	0.68	0.67	0.67	-13.9%
New Zealand	0.48	0.50	0.50	0.51	0.55	0.54	0.57	0.52	0.52	0.49	0.50	-9.4%
OECD Pacific	0.45	0.44	0.39	0.34	0.33	0.35	0.35	0.34	0.33	0.33	0.32	-3.6%
Austria	0.55	0.49	0.46	0.42	0.38	0.36	0.32	0.36	0.34	0.31	0.31	-19.1%
Belgium	1.03	0.88	0.82	0.64	0.58	0.57	0.51	0.45	0.42	0.40	0.41	-28.6%
Czech Republic	3.94	3.49	3.41	3.39	2.81	2.35	2.15	1.75	1.66	1.58	1.48	-47.4%
Denmark	0.66	0.60	0.62	0.52	0.41	0.42	0.32	0.28	0.32	0.29	0.27	-33.0%
Finland	0.77	0.71	0.75	0.58	0.55	0.58	0.45	0.40	0.46	0.42	0.37	-32.8%
France	0.68	0.59	0.54	0.39	0.32	0.31	0.28	0.27	0.26	0.25	0.24	-24.7%
Germany	1.03	0.94	0.86	0.77	0.62	0.51	0.44	0.41	0.41	0.39	0.38	-37.7%
Greece	0.39	0.45	0.48	0.58	0.70	0.68	0.69	0.61	0.58	0.58	0.54	-22.4%
Hungary	2.35	2.15	2.13	1.89	1.52	1.47	1.15	0.97	0.92	0.89	0.86	-43.2%
Iceland	0.44	0.42	0.34	0.28	0.28	0.28	0.25	0.20	0.20	0.20	0.18	-33.9%
Ireland	0.98	0.77	0.76	0.68	0.61	0.53	0.42	0.34	0.34	0.31	0.32	-47.7%
Italy	0.57	0.54	0.49	0.43	0.42	0.41	0.39	0.40	0.39	0.37	0.37	-13.7%
Luxembourg	2.54	1.77	1.56	1.15	0.84	0.54	0.40	0.46	0.44	0.39	0.38	-54.7%
Netherlands	0.75	0.72	0.74	0.64	0.55	0.54	0.45	0.44	0.42	0.40	0.40	-28.4%
Norway	0.39	0.33	0.31	0.25	0.24	0.23	0.20	0.19	0.19	0.19	0.19	-22.6%
Poland	3.21	2.96	3.47	3.50	2.91	2.52	1.70	1.47	1.44	1.35	1.26	-56.8%
Portugal	0.35	0.38	0.39	0.38	0.46	0.52	0.53	0.53	0.47	0.45	0.43	-6.8%
Slovak Republic	3.04	2.99	3.39	3.08	3.00	2.37	1.83	1.47	1.33	1.18	1.10	-63.4%
Spain	0.50	0.52	0.57	0.50	0.47	0.49	0.49	0.50	0.47	0.47	0.43	-8.2%
Sweden	0.61	0.52	0.45	0.33	0.26	0.28	0.21	0.18	0.17	0.16	0.15	-41.0%
Switzerland	0.23	0.22	0.22	0.21	0.18	0.18	0.17	0.17	0.16	0.15	0.15	-17.2%
Turkey	0.52	0.59	0.63	0.67	0.68	0.70	0.75	0.65	0.67	0.71	0.70	2.7%
United Kingdom	0.84	0.72	0.65	0.56	0.48	0.41	0.35	0.32	0.31	0.30	0.29	-39.7%
OECD Europe	0.84	0.77	0.73	0.64	0.54	0.49	0.43	0.41	0.40	0.39	0.38	-30.4%
<i>European Union - 27</i>	..	..	..	..	0.60	0.52	0.45	0.43	0.42	0.40	0.39	-34.8%

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	2.04	2.08	2.05	2.08	2.21	1.90	1.65	1.65	1.63	1.59	1.58	-28.8%
Algeria	0.49	0.54	0.81	0.97	1.11	1.18	1.14	1.13	1.15	1.17	1.17	5.0%
Angola	0.25	0.30	0.40	0.40	0.47	0.59	0.56	0.47	0.49	0.44	0.43	-8.8%
Benin	0.37	0.52	0.36	0.35	0.18	0.13	0.63	0.92	1.06	1.06	1.05	485.2%
Botswana	..	..	..	0.81	0.86	0.81	0.68	0.54	0.52	0.52	0.53	-38.2%
Cameroon	0.21	0.22	0.26	0.25	0.30	0.31	0.28	0.24	0.25	0.36	0.32	5.3%
Congo	0.57	0.48	0.46	0.30	0.25	0.18	0.18	0.23	0.27	0.28	0.34	35.6%
Dem. Rep. of Congo	0.35	0.34	0.44	0.42	0.39	0.40	0.39	0.43	0.43	0.44	0.45	15.8%
Côte d'Ivoire	0.47	0.48	0.44	0.39	0.32	0.36	0.59	0.56	0.56	0.53	0.59	86.8%
Egypt	0.97	1.07	1.10	1.23	1.21	1.08	1.10	1.28	1.26	1.24	1.20	-1.0%
Eritrea	..	..	..	..	..	1.27	0.95	0.84	0.73	0.71	0.61	..
Ethiopia	0.31	0.26	0.27	0.29	0.35	0.36	0.39	0.43	0.43	0.44	0.45	25.8%
Gabon	0.25	0.19	0.36	0.42	0.21	0.27	0.27	0.38	0.38	0.43	0.50	136.1%
Ghana	0.72	0.93	0.86	0.84	0.83	0.82	1.03	1.01	1.15	1.14	0.96	15.9%
Kenya	0.80	0.67	0.63	0.58	0.52	0.49	0.53	0.48	0.51	0.48	0.48	-7.7%
Libyan Arab Jamahiriya	0.11	0.33	0.42	0.60	0.92	1.11	1.15	0.97	0.92	0.87	0.85	-7.8%
Morocco	0.54	0.65	0.69	0.70	0.67	0.83	0.76	0.82	0.77	0.77	0.76	13.6%
Mozambique	1.01	0.97	0.94	0.78	0.43	0.39	0.31	0.24	0.23	0.26	0.24	-43.8%
Namibia	..	..	..	..	..	0.55	0.48	0.57	0.56	0.57	0.69	..
Nigeria	0.26	0.45	0.85	1.20	0.83	0.77	0.87	0.83	0.74	0.68	0.71	-14.8%
Senegal	0.53	0.63	0.74	0.69	0.58	0.64	0.77	0.79	0.74	0.79	0.78	34.9%
South Africa	2.43	2.55	2.25	2.24	2.30	2.39	2.25	2.06	1.96	1.93	1.84	-19.8%
Sudan	0.82	0.67	0.67	0.74	0.78	0.50	0.44	0.60	0.61	0.59	0.55	-29.7%
United Rep. of Tanzania	0.43	0.35	0.32	0.30	0.25	0.34	0.28	0.41	0.42	0.38	0.38	50.0%
Togo	0.53	0.41	0.38	0.31	0.53	0.53	0.72	0.66	0.58	0.57	0.70	31.0%
Tunisia	0.79	0.76	0.91	0.90	0.99	0.96	0.93	0.81	0.77	0.75	0.73	-26.3%
Zambia	1.44	1.64	1.23	1.00	0.86	0.73	0.52	0.51	0.46	0.31	0.33	-62.1%
Zimbabwe	2.07	1.77	1.82	1.78	2.38	2.08	1.72	1.84	1.85	1.85	1.86	-21.7%
Other Africa	0.32	0.35	0.43	0.37	0.39	0.45	0.41	0.40	0.40	0.41	0.41	3.9%
Africa	1.00	1.11	1.08	1.15	1.18	1.20	1.15	1.11	1.07	1.05	1.02	-13.8%
Bahrain	2.29	2.18	1.86	2.80	2.52	1.80	1.77	1.69	1.75	1.72	1.71	-32.1%
Islamic Rep. of Iran	0.94	1.17	1.64	2.13	2.56	3.05	3.07	3.09	3.21	3.18	3.15	22.9%
Iraq	0.24	0.24	0.33	0.71	1.60	5.69	3.16	4.31	4.47	4.31	4.25	165.3%
Israel	0.44	0.40	0.40	0.43	0.47	0.47	0.44	0.43	0.42	0.42	0.39	-16.0%
Jordan	0.63	1.03	1.00	1.36	1.79	1.68	1.69	1.57	1.47	1.45	1.31	-26.7%
Kuwait	0.73	0.87	1.10	1.72	0.96	1.19	1.33	1.31	1.11	1.06	1.04	8.1%
Lebanon	0.37	0.46	0.62	0.52	0.76	0.84	0.84	0.77	0.65	0.52	0.64	-15.6%
Oman	0.08	0.17	0.42	0.50	0.78	0.86	0.99	1.12	1.14	1.13	1.13	44.4%
Qatar	0.25	0.54	0.73	1.39	1.64	1.88	1.37	1.44	1.53	1.53	1.43	-12.8%
Saudi Arabia	0.25	0.22	0.66	1.06	1.12	1.23	1.33	1.41	1.45	1.47	1.54	38.0%
Syrian Arab Republic	1.68	1.50	1.59	2.16	2.63	2.24	2.37	2.01	2.03	2.07	1.99	-24.4%
United Arab Emirates	0.28	0.22	0.40	0.86	1.11	1.28	1.22	1.12	1.08	1.14	1.19	7.0%
Yemen	0.90	0.93	1.05	1.03	1.17	1.29	1.40	1.62	1.65	1.66	1.70	46.0%
Middle East	0.50	0.52	0.72	1.13	1.33	1.52	1.51	1.55	1.56	1.57	1.58	19.0%
Albania	2.27	2.07	2.68	2.29	1.94	0.66	0.86	0.95	0.82	0.75	0.68	-64.9%
Bosnia and Herzegovina *	..	..	..	..	15.73	2.06	2.48	2.23	2.30	2.26	2.32	-85.3%
Bulgaria	9.78	8.24	7.10	5.82	5.00	4.06	3.34	2.81	2.71	2.72	2.49	-50.2%
Croatia *	..	..	..	..	0.86	0.87	0.83	0.78	0.74	0.75	0.69	-19.0%
Cyprus	0.83	0.87	0.77	0.63	0.62	0.68	0.67	0.64	0.62	0.62	0.62	-0.6%
Gibraltar	0.26	0.24	0.26	0.24	0.31	0.51	0.53	0.53	0.53	0.53	0.54	75.8%
FYR of Macedonia *	..	..	..	..	2.17	2.64	2.35	2.29	2.20	2.17	2.02	-6.9%
Malta	1.05	0.68	0.60	0.65	0.96	0.75	0.54	0.67	0.61	0.63	0.58	-39.4%
Romania	6.12	4.95	4.30	3.60	3.80	2.96	2.33	1.88	1.80	1.64	1.47	-61.2%
Serbia *	..	..	..	..	6.03	4.41	4.28	3.92	3.94	3.79	3.55	-41.2%
Slovenia *	..	..	..	..	0.75	0.83	0.71	0.65	0.63	0.59	0.60	-20.2%
Former Yugoslavia *	1.88	1.82	1.58	2.15	..	..	..	..	..	..	..	..
Non-OECD Europe	3.88	3.51	3.08	3.01	2.97	2.28	1.86	1.63	1.59	1.52	1.42	-52.1%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions / GDP using exchange rateskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	7.26	2.30	1.78	1.21	1.08	1.09	1.12	-84.5%
Azerbaijan	..	..	..	..	7.06	8.40	5.57	3.22	2.26	1.64	1.58	-77.6%
Belarus	..	..	..	..	8.63	6.54	4.61	3.39	3.29	2.93	2.67	-69.1%
Estonia	..	..	..	..	6.06	3.92	2.57	2.03	1.70	1.96	1.86	-69.3%
Georgia	..	..	..	..	3.52	3.07	1.43	0.98	1.00	1.02	0.86	-75.5%
Kazakhstan	..	..	..	..	8.97	10.32	6.74	5.51	5.60	5.27	5.41	-39.7%
Kyrgyzstan	..	..	..	..	10.92	4.24	3.25	3.06	2.84	3.32	2.99	-72.6%
Latvia	..	..	..	..	1.79	1.49	0.87	0.65	0.62	0.58	0.58	-67.6%
Lithuania	..	..	..	..	2.06	1.52	0.98	0.81	0.76	0.74	0.71	-65.7%
Republic of Moldova	..	..	..	..	8.34	7.52	5.03	4.33	3.91	3.83	3.37	-59.6%
Russian Federation	..	..	..	..	5.64	6.56	5.80	4.34	4.20	3.88	3.71	-34.2%
Tajikistan	..	..	..	..	4.82	2.84	2.52	1.76	1.80	2.04	1.81	-62.5%
Turkmenistan	..	..	..	..	12.21	14.45	12.46	6.59	5.97	5.86	5.52	-54.8%
Ukraine	..	..	..	..	9.56	11.37	9.34	6.76	6.40	6.00	5.79	-39.4%
Uzbekistan	..	..	..	..	8.53	8.92	8.54	6.05	5.85	5.34	5.01	-41.3%
Former Soviet Union *	4.94	5.08	4.95	4.66	6.34	7.06	5.87	4.36	4.18	3.87	3.71	-41.4%
Argentina	0.50	0.47	0.45	0.47	0.55	0.47	0.49	0.48	0.47	0.45	0.44	-20.2%
Bolivia	0.52	0.62	0.75	0.86	0.94	1.15	0.91	0.95	0.94	1.15	1.13	20.5%
Brazil	0.43	0.44	0.42	0.37	0.39	0.41	0.47	0.44	0.43	0.42	0.43	10.3%
Chile	0.90	0.86	0.76	0.66	0.79	0.66	0.72	0.68	0.67	0.71	0.70	-11.6%
Colombia	0.82	0.71	0.66	0.66	0.61	0.65	0.62	0.50	0.47	0.44	0.45	-27.1%
Costa Rica	0.27	0.30	0.29	0.27	0.27	0.35	0.28	0.28	0.28	0.29	0.28	2.8%
Cuba	1.19	1.37	1.31	0.93	0.85	0.98	0.88	0.73	0.63	0.60	0.70	-17.5%
Dominican Republic	0.59	0.63	0.59	0.53	0.58	0.66	0.73	0.61	0.59	0.56	0.54	-5.9%
Ecuador	0.62	0.74	0.98	1.04	0.99	1.07	1.16	1.14	1.18	1.17	1.10	11.2%
El Salvador	0.18	0.23	0.19	0.22	0.26	0.42	0.40	0.41	0.38	0.39	0.35	37.3%
Guatemala	0.32	0.34	0.36	0.29	0.26	0.38	0.46	0.49	0.47	0.47	0.41	58.9%
Haiti	0.12	0.12	0.13	0.18	0.22	0.26	0.37	0.53	0.53	0.58	0.58	170.9%
Honduras	0.45	0.46	0.42	0.38	0.42	0.58	0.62	0.78	0.68	0.81	0.74	79.0%
Jamaica	0.86	1.08	1.12	0.78	0.95	0.91	1.09	1.07	1.16	1.23	1.17	23.1%
Netherlands Antilles	..	..	8.41	4.61	2.62	2.32	3.37	3.33	3.21	3.42	3.33	27.2%
Nicaragua	0.46	0.46	0.55	0.54	0.65	0.81	0.90	0.89	0.83	0.89	0.81	24.2%
Panama	0.56	0.62	0.47	0.36	0.35	0.44	0.40	0.40	0.42	0.37	0.34	-0.7%
Paraguay	0.28	0.26	0.30	0.29	0.32	0.48	0.46	0.43	0.43	0.41	0.39	20.4%
Peru	0.55	0.53	0.53	0.46	0.53	0.50	0.50	0.44	0.40	0.40	0.41	-22.3%
Trinidad and Tobago	1.36	1.14	1.06	1.44	1.90	1.92	2.20	2.56	2.86	2.58	2.58	35.7%
Uruguay	0.41	0.40	0.33	0.22	0.22	0.22	0.23	0.22	0.25	0.21	0.26	17.6%
Venezuela	0.76	0.81	1.05	1.14	1.10	1.05	1.08	1.03	0.98	0.90	0.87	-20.7%
Other Latin America	0.78	1.05	0.74	0.62	0.64	0.65	0.61	0.62	0.61	0.60	0.60	-6.6%
Latin America	0.56	0.55	0.55	0.52	0.55	0.55	0.58	0.55	0.54	0.52	0.52	-5.2%
Bangladesh	0.18	0.28	0.35	0.36	0.46	0.56	0.54	0.59	0.60	0.60	0.63	36.5%
Brunei Darussalam	0.14	0.40	0.46	0.61	0.70	0.84	0.77	0.77	1.09	1.02	1.09	55.7%
Cambodia	..	..	..	..	..	0.53	0.64	0.64	0.63	0.62	0.61	..
Chinese Taipei	0.88	0.89	0.91	0.65	0.67	0.65	0.68	0.70	0.69	0.66	0.63	-5.4%
India	1.67	1.78	1.86	2.07	2.18	2.27	2.13	1.80	1.77	1.74	1.73	-20.9%
Indonesia	0.85	0.94	1.17	1.10	1.29	1.21	1.63	1.56	1.54	1.57	1.56	21.1%
DPR of Korea	22.35	16.20	12.93	9.67	7.32	6.12	6.34	6.57	6.55	5.48	5.97	-18.5%
Malaysia	0.97	0.92	0.92	0.99	1.04	1.06	1.18	1.29	1.26	1.28	1.30	25.4%
Mongolia	..	..	..	12.75	11.52	10.55	8.09	6.44	6.57	6.32	5.87	-49.0%
Myanmar	1.72	1.35	1.28	1.15	0.89	1.13	0.91	0.82	0.70	0.67	0.61	-31.0%
Nepal	0.11	0.17	0.24	0.20	0.26	0.40	0.56	0.47	0.46	0.46	0.46	74.1%
Pakistan	0.96	1.03	0.96	1.04	1.18	1.27	1.32	1.26	1.27	1.32	1.19	1.1%
Philippines	0.82	0.82	0.70	0.62	0.70	0.94	0.92	0.76	0.68	0.67	0.65	-7.1%
Singapore	0.57	0.58	0.58	0.55	0.64	0.56	0.46	0.39	0.35	0.33	0.33	-49.3%
Sri Lanka	0.64	0.53	0.57	0.43	0.38	0.43	0.65	0.68	0.56	0.57	0.51	32.6%
Thailand	0.86	0.86	0.92	0.83	0.99	1.18	1.30	1.36	1.31	1.30	1.29	30.0%
Vietnam	2.00	2.05	1.72	1.45	1.15	1.26	1.43	1.82	1.78	1.79	1.85	60.3%
Other Asia	0.79	0.86	1.20	0.64	0.56	0.42	0.47	0.47	0.42	0.35	0.35	-37.5%
Asia	1.34	1.36	1.37	1.37	1.38	1.34	1.37	1.29	1.27	1.25	1.25	-9.2%
People's Rep. of China	7.47	7.88	7.68	5.60	4.97	3.77	2.53	2.68	2.65	2.53	2.50	-49.7%
Hong Kong, China	0.35	0.31	0.24	0.28	0.29	0.24	0.24	0.20	0.19	0.18	0.18	-39.1%
China	6.09	6.32	5.84	4.50	4.01	3.21	2.25	2.43	2.42	2.32	2.30	-42.6%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ Emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	0.80	0.76	0.72	0.65	0.63	0.58	0.51	0.49	0.48	0.47	0.46	-26.8%
<i>Annex I Parties</i>	..	..	..	..	0.62	0.56	0.50	0.46	0.44	0.43	0.42	-32.4%
<i>Annex II Parties</i>	0.82	0.74	0.67	0.57	0.52	0.49	0.45	0.42	0.40	0.39	0.38	-26.1%
<i>North America</i>	1.10	1.01	0.90	0.75	0.69	0.64	0.58	0.52	0.50	0.50	0.48	-30.0%
<i>Europe</i>	0.64	0.58	0.54	0.46	0.40	0.36	0.32	0.31	0.30	0.29	0.28	-29.4%
<i>Pacific</i>	0.58	0.57	0.49	0.42	0.41	0.41	0.40	0.39	0.38	0.38	0.36	-11.4%
<i>Annex I EIT</i>	..	..	..	..	1.32	1.35	1.10	0.86	0.83	0.78	0.74	-43.9%
<i>Non-Annex I Parties</i>	..	..	..	..	0.59	0.55	0.49	0.49	0.49	0.47	0.47	-20.1%
<i>Annex I Kyoto Parties</i>	..	..	..	..	0.59	0.52	0.46	0.43	0.42	0.40	0.39	-34.0%
Non-OECD Total	0.71	0.73	0.73	0.71	0.76	0.66	0.56	0.54	0.53	0.51	0.51	-33.4%
OECD Total	0.81	0.74	0.68	0.58	0.52	0.49	0.45	0.42	0.40	0.40	0.38	-26.5%
Canada	0.98	0.91	0.86	0.71	0.66	0.65	0.61	0.56	0.53	0.55	0.52	-20.4%
Mexico	0.30	0.33	0.36	0.39	0.38	0.38	0.35	0.36	0.35	0.35	0.34	-9.3%
United States	1.11	1.02	0.91	0.75	0.69	0.64	0.58	0.52	0.50	0.49	0.48	-30.8%
OECD N. America	1.04	0.95	0.85	0.72	0.66	0.62	0.56	0.51	0.49	0.49	0.47	-29.1%
Australia	0.67	0.75	0.75	0.69	0.70	0.66	0.64	0.63	0.61	0.58	0.59	-16.7%
Japan	0.58	0.54	0.45	0.39	0.37	0.37	0.36	0.35	0.34	0.34	0.32	-13.7%
Korea	0.50	0.55	0.64	0.54	0.51	0.55	0.52	0.46	0.45	0.44	0.44	-13.9%
New Zealand	0.31	0.33	0.33	0.33	0.36	0.35	0.37	0.34	0.34	0.32	0.33	-9.4%
OECD Pacific	0.58	0.56	0.50	0.43	0.42	0.43	0.42	0.41	0.40	0.39	0.38	-10.1%
Austria	0.46	0.41	0.38	0.35	0.31	0.30	0.27	0.30	0.28	0.26	0.25	-19.1%
Belgium	0.84	0.73	0.68	0.52	0.48	0.47	0.42	0.37	0.35	0.33	0.34	-28.6%
Czech Republic	1.45	1.29	1.25	1.25	1.03	0.86	0.79	0.65	0.61	0.58	0.54	-47.4%
Denmark	0.69	0.62	0.64	0.55	0.42	0.43	0.33	0.29	0.33	0.30	0.28	-33.1%
Finland	0.70	0.65	0.69	0.53	0.50	0.53	0.41	0.37	0.42	0.39	0.34	-32.8%
France	0.59	0.51	0.46	0.34	0.28	0.26	0.25	0.23	0.22	0.21	0.21	-24.7%
Germany	0.92	0.84	0.77	0.69	0.55	0.45	0.39	0.37	0.36	0.34	0.34	-37.7%
Greece	0.25	0.28	0.30	0.36	0.44	0.43	0.43	0.39	0.37	0.36	0.34	-22.4%
Hungary	0.90	0.82	0.81	0.72	0.58	0.56	0.44	0.37	0.35	0.34	0.33	-43.2%
Iceland	0.48	0.45	0.36	0.30	0.30	0.30	0.26	0.22	0.21	0.21	0.20	-33.9%
Ireland	0.87	0.69	0.67	0.60	0.54	0.47	0.37	0.31	0.30	0.28	0.28	-47.7%
Italy	0.43	0.40	0.37	0.33	0.32	0.31	0.29	0.30	0.29	0.28	0.28	-13.7%
Luxembourg	2.20	1.53	1.35	0.99	0.73	0.47	0.34	0.40	0.38	0.34	0.33	-54.7%
Netherlands	0.61	0.59	0.61	0.53	0.45	0.45	0.37	0.37	0.35	0.33	0.33	-28.4%
Norway	0.40	0.34	0.32	0.26	0.25	0.24	0.21	0.20	0.20	0.20	0.19	-22.6%
Poland	1.36	1.26	1.47	1.48	1.23	1.07	0.72	0.62	0.61	0.57	0.53	-56.8%
Portugal	0.23	0.24	0.25	0.25	0.30	0.34	0.34	0.34	0.30	0.29	0.28	-6.9%
Slovak Republic	1.04	1.03	1.17	1.06	1.03	0.81	0.63	0.51	0.46	0.41	0.38	-63.4%
Spain	0.34	0.35	0.39	0.34	0.32	0.33	0.33	0.34	0.32	0.32	0.29	-8.2%
Sweden	0.61	0.52	0.45	0.33	0.26	0.28	0.21	0.18	0.16	0.16	0.15	-41.0%
Switzerland	0.26	0.24	0.24	0.23	0.20	0.20	0.18	0.18	0.17	0.16	0.16	-17.2%
Turkey	0.24	0.27	0.29	0.30	0.31	0.32	0.34	0.29	0.30	0.32	0.32	2.7%
United Kingdom	0.81	0.69	0.62	0.54	0.46	0.40	0.34	0.31	0.30	0.28	0.28	-39.7%
OECD Europe	0.68	0.62	0.59	0.51	0.44	0.40	0.35	0.33	0.32	0.31	0.30	-31.5%
<i>European Union - 27</i>	..	..	..	..	0.47	0.42	0.36	0.34	0.33	0.32	0.31	-35.2%

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

CO₂ Emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	0.71	0.73	0.73	0.71	0.76	0.66	0.56	0.54	0.53	0.51	0.51	-33.4%
Algeria	0.17	0.18	0.27	0.33	0.38	0.40	0.38	0.38	0.39	0.40	0.40	5.0%
Angola	0.11	0.13	0.18	0.18	0.21	0.27	0.25	0.21	0.22	0.20	0.19	-8.8%
Benin	0.12	0.17	0.12	0.11	0.06	0.04	0.20	0.30	0.34	0.34	0.34	484.8%
Botswana	..	..	..	0.34	0.36	0.34	0.29	0.23	0.22	0.22	0.23	-38.2%
Cameroon	0.08	0.08	0.09	0.09	0.11	0.11	0.10	0.09	0.09	0.13	0.12	5.3%
Congo	0.51	0.42	0.41	0.26	0.22	0.16	0.16	0.21	0.24	0.25	0.30	35.6%
Dem. Rep. of Congo	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	15.7%
Côte d'Ivoire	0.18	0.19	0.17	0.15	0.12	0.14	0.23	0.22	0.22	0.21	0.23	86.8%
Egypt	0.41	0.45	0.46	0.52	0.51	0.46	0.46	0.54	0.53	0.52	0.50	-0.9%
Eritrea	..	..	..	..	..	0.22	0.17	0.15	0.13	0.12	0.11	..
Ethiopia	0.05	0.04	0.04	0.04	0.05	0.05	0.06	0.07	0.06	0.07	0.07	25.8%
Gabon	0.17	0.13	0.24	0.28	0.14	0.18	0.19	0.26	0.26	0.30	0.34	136.2%
Ghana	0.09	0.12	0.11	0.11	0.11	0.11	0.13	0.13	0.15	0.15	0.13	15.9%
Kenya	0.32	0.27	0.25	0.23	0.21	0.20	0.21	0.19	0.21	0.19	0.19	-7.6%
Libyan Arab Jamahiriya	0.08	0.24	0.31	0.44	0.68	0.81	0.85	0.71	0.67	0.64	0.62	-7.8%
Morocco	0.18	0.21	0.23	0.23	0.22	0.27	0.25	0.27	0.25	0.26	0.25	13.7%
Mozambique	0.27	0.26	0.25	0.20	0.11	0.10	0.08	0.06	0.06	0.07	0.06	-43.8%
Namibia	..	..	..	..	..	0.17	0.15	0.18	0.17	0.17	0.21	..
Nigeria	0.11	0.20	0.37	0.52	0.36	0.33	0.38	0.36	0.32	0.30	0.31	-14.7%
Senegal	0.16	0.19	0.22	0.20	0.17	0.19	0.23	0.23	0.22	0.23	0.23	34.9%
South Africa	0.84	0.88	0.77	0.77	0.79	0.82	0.77	0.71	0.68	0.66	0.63	-19.8%
Sudan	0.20	0.17	0.17	0.18	0.19	0.13	0.11	0.15	0.15	0.15	0.14	-29.7%
United Rep. of Tanzania	0.22	0.18	0.17	0.15	0.13	0.17	0.15	0.21	0.22	0.20	0.19	50.0%
Togo	0.10	0.08	0.07	0.06	0.10	0.10	0.13	0.12	0.11	0.10	0.13	31.0%
Tunisia	0.25	0.24	0.29	0.29	0.32	0.31	0.30	0.26	0.25	0.24	0.24	-26.3%
Zambia	0.55	0.63	0.47	0.39	0.33	0.28	0.20	0.19	0.18	0.12	0.13	-62.1%
Zimbabwe	0.49	0.42	0.43	0.42	0.56	0.49	0.40	0.43	0.43	0.44	0.44	-21.7%
Other Africa	0.08	0.09	0.11	0.10	0.11	0.12	0.11	0.12	0.11	0.12	0.12	12.3%
Africa	0.34	0.38	0.38	0.40	0.41	0.42	0.40	0.39	0.37	0.37	0.36	-12.5%
Bahrain	1.74	1.66	1.42	2.14	1.92	1.37	1.35	1.29	1.33	1.31	1.30	-32.1%
Islamic Rep. of Iran	0.26	0.32	0.45	0.58	0.70	0.83	0.84	0.85	0.88	0.87	0.86	22.9%
Iraq	0.18	0.18	0.24	0.52	1.17	4.16	2.31	3.15	3.27	3.15	3.11	165.3%
Israel	0.38	0.34	0.34	0.36	0.40	0.40	0.37	0.37	0.36	0.36	0.33	-16.0%
Jordan	0.27	0.43	0.42	0.57	0.75	0.71	0.71	0.66	0.62	0.61	0.55	-26.7%
Kuwait	0.64	0.76	0.97	1.51	0.84	1.05	1.17	1.15	0.97	0.93	0.91	8.1%
Lebanon	0.38	0.47	0.65	0.54	0.79	0.87	0.87	0.80	0.68	0.54	0.67	-15.6%
Oman	0.05	0.11	0.27	0.32	0.51	0.55	0.64	0.72	0.73	0.73	0.73	44.4%
Qatar	0.28	0.60	0.82	1.55	1.83	2.09	1.53	1.61	1.70	1.70	1.60	-12.8%
Saudi Arabia	0.17	0.14	0.44	0.71	0.75	0.83	0.89	0.95	0.97	0.99	1.04	37.9%
Syrian Arab Republic	0.61	0.54	0.58	0.78	0.96	0.81	0.86	0.73	0.74	0.75	0.72	-24.4%
United Arab Emirates	0.28	0.22	0.41	0.87	1.13	1.29	1.23	1.14	1.09	1.15	1.20	7.0%
Yemen	0.58	0.60	0.67	0.66	0.75	0.83	0.90	1.04	1.05	1.06	1.09	46.0%
Middle East	0.29	0.30	0.44	0.66	0.77	0.88	0.88	0.90	0.91	0.91	0.92	18.9%
Albania	0.73	0.67	0.87	0.74	0.63	0.21	0.28	0.31	0.26	0.24	0.22	-64.9%
Bosnia and Herzegovina *	..	..	..	..	3.87	0.51	0.61	0.55	0.57	0.55	0.57	-85.3%
Bulgaria	2.52	2.12	1.83	1.50	1.29	1.05	0.86	0.72	0.70	0.70	0.64	-50.2%
Croatia *	..	..	..	..	0.39	0.39	0.37	0.35	0.33	0.34	0.31	-19.0%
Cyprus	0.57	0.60	0.53	0.43	0.43	0.47	0.46	0.44	0.43	0.43	0.42	-0.6%
Gibraltar	0.25	0.23	0.25	0.23	0.29	0.49	0.51	0.50	0.51	0.51	0.52	75.9%
FYR of Macedonia *	..	..	..	..	0.64	0.78	0.69	0.68	0.65	0.64	0.59	-6.9%
Malta	0.59	0.38	0.34	0.36	0.54	0.42	0.30	0.37	0.35	0.35	0.33	-39.4%
Romania	1.71	1.39	1.20	1.01	1.06	0.83	0.65	0.53	0.50	0.46	0.41	-61.2%
Serbia *	..	..	..	..	1.64	1.20	1.16	1.06	1.07	1.03	0.96	-41.2%
Slovenia *	..	..	..	..	0.43	0.47	0.41	0.37	0.36	0.34	0.34	-20.9%
Former Yugoslavia *	0.87	0.84	0.73	0.99	..	..	..	..	..	..	..	..
Non-OECD Europe	1.41	1.25	1.09	1.05	1.00	0.78	0.64	0.56	0.54	0.52	0.48	-51.7%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ Emissions / GDP using purchasing power paritieskilogrammes CO₂ / US dollar using 2000 prices

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	1.86	0.59	0.46	0.31	0.28	0.28	0.29	-84.5%
Azerbaijan	..	..	..	..	1.87	2.22	1.47	0.85	0.60	0.43	0.42	-77.6%
Belarus	..	..	..	..	2.29	1.73	1.22	0.90	0.87	0.78	0.71	-69.1%
Estonia	..	..	..	..	2.65	1.64	1.08	0.85	0.71	0.82	0.78	-70.5%
Georgia	..	..	..	..	1.14	0.99	0.46	0.32	0.32	0.33	0.28	-75.5%
Kazakhstan	..	..	..	..	2.54	2.92	1.91	1.56	1.58	1.49	1.53	-39.7%
Kyrgyzstan	..	..	..	..	2.03	0.79	0.61	0.57	0.53	0.62	0.56	-72.6%
Latvia	..	..	..	..	0.74	0.62	0.36	0.27	0.25	0.24	0.24	-67.6%
Lithuania	..	..	..	..	0.77	0.57	0.37	0.30	0.28	0.28	0.26	-65.7%
Republic of Moldova	..	..	..	..	1.90	1.72	1.15	0.99	0.89	0.87	0.77	-59.6%
Russian Federation	..	..	..	..	1.43	1.71	1.51	1.13	1.09	1.01	0.97	-32.5%
Tajikistan	..	..	..	..	0.95	0.56	0.49	0.35	0.35	0.40	0.36	-62.5%
Turkmenistan	..	..	..	..	2.26	2.68	2.31	1.22	1.11	1.09	1.02	-54.8%
Ukraine	..	..	..	..	1.51	1.79	1.47	1.06	1.01	0.94	0.91	-39.4%
Uzbekistan	..	..	..	..	3.18	3.32	3.18	2.26	2.18	1.99	1.87	-41.3%
Former Soviet Union *	1.20	1.23	1.20	1.13	1.54	1.77	1.50	1.11	1.06	0.99	0.95	-38.5%
Argentina	0.32	0.30	0.29	0.30	0.35	0.30	0.31	0.31	0.30	0.29	0.28	-20.2%
Bolivia	0.22	0.26	0.32	0.36	0.40	0.49	0.38	0.40	0.40	0.49	0.48	20.5%
Brazil	0.22	0.23	0.22	0.19	0.20	0.21	0.24	0.23	0.22	0.22	0.22	10.3%
Chile	0.48	0.46	0.41	0.36	0.42	0.35	0.38	0.36	0.35	0.37	0.37	-12.8%
Colombia	0.28	0.24	0.22	0.22	0.21	0.22	0.21	0.17	0.16	0.15	0.15	-27.1%
Costa Rica	0.14	0.15	0.14	0.13	0.14	0.17	0.14	0.14	0.14	0.14	0.14	2.8%
Cuba	0.52	0.59	0.57	0.40	0.37	0.42	0.38	0.32	0.28	0.26	0.30	-17.5%
Dominican Republic	0.21	0.22	0.21	0.19	0.20	0.24	0.26	0.22	0.21	0.20	0.19	-5.9%
Ecuador	0.25	0.30	0.39	0.42	0.40	0.43	0.47	0.46	0.47	0.47	0.44	11.2%
El Salvador	0.08	0.10	0.09	0.10	0.12	0.19	0.18	0.18	0.17	0.18	0.16	37.3%
Guatemala	0.14	0.15	0.15	0.12	0.11	0.16	0.20	0.21	0.20	0.20	0.17	58.8%
Haiti	0.03	0.04	0.04	0.05	0.06	0.08	0.11	0.16	0.16	0.17	0.17	171.0%
Honduras	0.14	0.15	0.13	0.12	0.13	0.19	0.20	0.25	0.22	0.26	0.24	79.0%
Jamaica	0.74	0.93	0.97	0.68	0.82	0.79	0.94	0.92	1.00	1.06	1.01	23.1%
Netherlands Antilles	..	..	3.74	2.05	1.16	1.03	1.50	1.48	1.43	1.52	1.48	27.2%
Nicaragua	0.12	0.12	0.14	0.14	0.17	0.21	0.23	0.23	0.21	0.23	0.21	24.2%
Panama	0.37	0.41	0.31	0.23	0.23	0.29	0.26	0.26	0.27	0.24	0.22	-0.7%
Paraguay	0.09	0.08	0.10	0.09	0.10	0.15	0.15	0.14	0.14	0.13	0.12	20.4%
Peru	0.24	0.23	0.23	0.20	0.23	0.22	0.22	0.19	0.17	0.17	0.18	-22.3%
Trinidad and Tobago	0.95	0.79	0.74	1.00	1.33	1.34	1.54	1.79	2.00	1.80	1.80	35.7%
Uruguay	0.29	0.28	0.23	0.16	0.16	0.16	0.16	0.16	0.17	0.15	0.18	17.6%
Venezuela	0.64	0.68	0.88	0.95	0.92	0.88	0.91	0.86	0.82	0.75	0.73	-20.7%
Other Latin America	0.50	0.67	0.50	0.43	0.46	0.46	0.44	0.44	0.43	0.42	0.42	-8.0%
Latin America	0.30	0.29	0.29	0.27	0.29	0.29	0.30	0.29	0.28	0.27	0.27	-5.1%
Bangladesh	0.04	0.07	0.08	0.09	0.11	0.13	0.13	0.14	0.14	0.14	0.15	36.5%
Brunei Darussalam	0.11	0.33	0.38	0.51	0.59	0.70	0.65	0.64	0.91	0.86	0.91	55.8%
Cambodia	..	..	..	..	..	0.09	0.11	0.10	0.10	0.10	0.10	..
Chinese Taipei	0.58	0.58	0.59	0.43	0.44	0.43	0.45	0.46	0.45	0.43	0.41	-5.4%
India	0.32	0.34	0.36	0.40	0.42	0.43	0.41	0.34	0.34	0.33	0.33	-20.9%
Indonesia	0.23	0.26	0.32	0.30	0.35	0.33	0.45	0.43	0.43	0.43	0.43	21.0%
DPR of Korea	6.35	4.61	3.68	2.75	2.08	1.74	1.80	1.87	1.86	1.56	1.70	-18.5%
Malaysia	0.44	0.42	0.42	0.45	0.47	0.48	0.54	0.59	0.58	0.59	0.60	25.4%
Mongolia	..	..	..	3.29	2.97	2.72	2.09	1.66	1.70	1.63	1.51	-49.0%
Myanmar	0.28	0.22	0.21	0.19	0.15	0.19	0.15	0.14	0.12	0.11	0.10	-31.0%
Nepal	0.02	0.03	0.04	0.03	0.04	0.07	0.09	0.08	0.08	0.08	0.08	74.1%
Pakistan	0.27	0.29	0.27	0.29	0.33	0.36	0.37	0.36	0.36	0.37	0.34	1.1%
Philippines	0.20	0.20	0.17	0.15	0.17	0.23	0.23	0.19	0.17	0.17	0.16	-7.0%
Singapore	0.55	0.57	0.57	0.53	0.63	0.54	0.45	0.38	0.35	0.32	0.32	-49.3%
Sri Lanka	0.16	0.13	0.14	0.11	0.09	0.11	0.16	0.17	0.14	0.14	0.12	32.5%
Thailand	0.27	0.27	0.29	0.26	0.31	0.37	0.41	0.43	0.41	0.41	0.41	30.0%
Vietnam	0.39	0.40	0.34	0.28	0.23	0.25	0.28	0.36	0.35	0.35	0.36	60.4%
Other Asia	0.23	0.26	0.37	0.20	0.19	0.16	0.18	0.18	0.17	0.14	0.14	-27.6%
Asia	0.34	0.36	0.38	0.38	0.39	0.39	0.40	0.36	0.36	0.35	0.35	-11.6%
People's Rep. of China	1.80	1.90	1.85	1.35	1.20	0.91	0.61	0.64	0.64	0.61	0.60	-49.7%
Hong Kong, China	0.34	0.30	0.23	0.27	0.28	0.23	0.23	0.19	0.18	0.18	0.17	-39.1%
China	1.72	1.80	1.73	1.28	1.14	0.88	0.60	0.63	0.63	0.60	0.59	-48.1%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
World *	3.75	3.86	4.07	3.86	3.98	3.84	3.87	4.20	4.29	4.38	4.39	10.3%
<i>Annex I Parties</i>	..	..	..	..	11.83	10.91	11.17	11.25	11.20	11.23	10.91	-7.8%
<i>Annex II Parties</i>	12.20	12.18	12.64	11.82	12.26	12.32	12.90	12.84	12.63	12.62	12.17	-0.7%
<i>North America</i>	20.16	19.81	20.17	18.72	19.08	18.94	19.90	19.28	18.79	18.92	18.19	-4.6%
<i>Europe</i>	8.63	8.56	9.11	8.37	8.36	8.16	8.26	8.35	8.30	8.10	7.90	-5.5%
<i>Pacific</i>	7.57	8.18	8.19	7.98	9.33	9.89	10.35	10.78	10.68	10.85	10.31	10.4%
<i>Annex I EIT</i>	..	..	..	..	12.40	8.82	8.13	8.49	8.81	8.84	8.84	-28.7%
<i>Non-Annex I Parties</i>	..	..	..	..	1.58	1.77	1.84	2.32	2.45	2.56	2.67	69.3%
<i>Annex I Kyoto Parties</i>	..	..	..	..	10.22	8.98	8.92	9.17	9.21	9.19	8.97	-12.2%
Non-OECD Total	1.48	1.73	1.97	2.02	2.20	2.08	2.06	2.51	2.65	2.75	2.86	29.7%
OECD Total	10.59	10.60	11.06	10.36	10.59	10.62	11.07	11.06	10.94	10.97	10.61	0.2%
Canada	15.46	16.30	17.41	15.56	15.61	15.88	17.36	17.33	16.69	17.33	16.53	5.9%
Mexico	1.95	2.45	3.23	3.42	3.26	3.19	3.52	3.75	3.79	3.95	3.83	17.5%
United States	20.66	20.19	20.47	19.06	19.46	19.28	20.18	19.50	19.02	19.10	18.38	-5.6%
OECD N. America	16.91	16.48	16.67	15.39	15.50	15.23	15.99	15.55	15.19	15.33	14.75	-4.8%
Australia	10.92	12.89	14.05	13.90	15.15	15.69	17.58	18.95	18.90	18.30	18.48	22.0%
Japan	7.23	7.66	7.52	7.25	8.61	9.14	9.33	9.55	9.43	9.72	9.02	4.7%
Korea	1.58	2.18	3.26	3.76	5.35	7.95	8.96	9.72	9.87	10.12	10.31	92.8%
New Zealand	4.80	5.52	5.22	5.99	6.30	6.69	7.69	8.01	8.03	7.62	7.74	22.8%
OECD Pacific	6.29	6.89	7.10	7.03	8.42	9.43	10.01	10.52	10.49	10.67	10.31	22.4%
Austria	6.49	6.62	7.37	7.18	7.36	7.47	7.68	9.11	8.72	8.36	8.31	13.0%
Belgium	12.09	11.82	12.75	10.34	10.83	11.37	11.58	10.75	10.40	9.97	10.36	-4.3%
Czech Republic	15.35	15.17	16.06	16.75	14.97	11.97	11.86	11.69	11.75	11.82	11.20	-25.2%
Denmark	11.09	10.37	12.21	11.83	9.81	11.09	9.46	8.87	10.28	9.37	8.82	-10.2%
Finland	8.62	9.42	11.54	9.91	10.91	10.97	10.47	10.57	12.68	12.15	10.65	-2.4%
France	8.24	7.99	8.37	6.37	6.06	5.96	6.21	6.17	6.00	5.86	5.74	-5.2%
Germany	12.49	12.40	13.48	13.06	11.98	10.65	10.06	9.84	10.00	9.74	9.79	-18.3%
Greece	2.80	3.75	4.62	5.41	6.78	6.84	7.99	8.56	8.44	8.74	8.31	22.5%
Hungary	5.82	6.72	7.82	7.64	6.44	5.55	5.31	5.59	5.55	5.38	5.28	-18.0%
Iceland	6.79	7.37	7.62	6.71	7.37	7.30	7.60	7.36	7.31	7.53	6.89	-6.5%
Ireland	7.29	6.64	7.62	7.45	8.50	8.97	10.75	10.46	10.55	10.06	9.85	15.8%
Italy	5.42	5.76	6.38	6.14	7.01	7.20	7.48	7.80	7.78	7.43	7.18	2.5%
Luxembourg	45.11	33.69	32.75	27.03	27.40	19.92	18.27	24.11	23.65	22.35	21.27	-22.4%
Netherlands	9.82	10.31	11.78	10.63	10.43	11.06	10.81	11.19	10.91	10.84	10.82	3.8%
Norway	6.02	6.01	6.85	6.54	6.67	7.53	7.47	7.86	8.02	8.08	7.89	18.3%
Poland	8.74	9.94	11.61	11.28	9.04	8.66	7.62	7.69	7.99	7.98	7.84	-13.3%
Portugal	1.66	1.97	2.41	2.44	3.93	4.81	5.81	5.94	5.31	5.18	4.94	25.6%
Slovak Republic	8.57	9.25	11.10	10.54	10.71	7.61	6.92	7.07	6.95	6.82	6.70	-37.4%
Spain	3.49	4.39	4.99	4.55	5.28	5.92	7.05	7.83	7.54	7.67	6.97	32.1%
Sweden	10.18	9.69	8.84	7.04	6.16	6.52	5.95	5.58	5.29	5.07	4.96	-19.6%
Switzerland	6.14	5.73	6.14	6.34	5.99	5.80	5.78	5.93	5.83	5.54	5.67	-5.4%
Turkey	1.14	1.48	1.60	1.88	2.30	2.55	3.12	3.15	3.45	3.77	3.71	61.0%
United Kingdom	11.15	10.31	10.14	9.63	9.60	8.90	8.89	8.84	8.80	8.54	8.32	-13.3%
OECD Europe	8.11	8.15	8.74	8.10	7.86	7.56	7.57	7.63	7.65	7.53	7.35	-6.5%
<i>European Union - 27</i>	..	..	..	..	8.57	8.03	7.93	8.07	8.07	7.92	7.72	-10.0%

* The ratio for the world has been calculated to include international marine bunkers and international aviation bunkers.

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Non-OECD Total	1.48	1.73	1.97	2.02	2.20	2.08	2.06	2.51	2.65	2.75	2.86	29.7%
Algeria	0.61	0.88	1.51	1.96	2.04	1.97	2.05	2.39	2.45	2.53	2.56	25.4%
Angola	0.27	0.29	0.34	0.31	0.38	0.32	0.36	0.42	0.51	0.53	0.59	55.8%
Benin	0.11	0.15	0.11	0.11	0.05	0.04	0.21	0.32	0.37	0.37	0.38	614.2%
Botswana	..	..	..	1.34	2.15	2.13	2.42	2.35	2.29	2.36	2.37	10.5%
Cameroon	0.10	0.13	0.18	0.23	0.22	0.18	0.18	0.16	0.17	0.25	0.23	4.0%
Congo	0.42	0.43	0.44	0.40	0.29	0.19	0.19	0.27	0.32	0.33	0.41	44.0%
Dem. Rep. of Congo	0.12	0.11	0.11	0.10	0.08	0.05	0.03	0.04	0.04	0.04	0.04	-43.5%
Côte d'Ivoire	0.43	0.46	0.40	0.29	0.21	0.21	0.35	0.30	0.30	0.28	0.31	50.3%
Egypt	0.56	0.65	0.95	1.29	1.37	1.32	1.57	1.97	2.04	2.11	2.13	55.7%
Eritrea	..	..	..	..	..	0.24	0.16	0.13	0.11	0.11	0.09	..
Ethiopia	0.04	0.03	0.04	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.08	96.7%
Gabon	0.87	1.26	1.87	2.13	0.97	1.22	1.12	1.55	1.53	1.80	2.06	111.5%
Ghana	0.22	0.23	0.21	0.17	0.18	0.19	0.26	0.29	0.35	0.36	0.31	73.5%
Kenya	0.28	0.26	0.27	0.24	0.23	0.20	0.22	0.20	0.23	0.22	0.22	-4.8%
Libyan Arab Jamahiriya	1.79	3.72	6.06	5.84	6.27	7.27	7.42	7.18	7.04	7.01	7.15	14.0%
Morocco	0.45	0.58	0.72	0.76	0.81	0.96	0.99	1.28	1.28	1.31	1.35	65.8%
Mozambique	0.30	0.22	0.19	0.11	0.08	0.07	0.07	0.07	0.08	0.09	0.09	11.0%
Namibia	..	..	..	..	..	1.09	1.00	1.40	1.47	1.51	1.86	..
Nigeria	0.11	0.19	0.38	0.40	0.31	0.28	0.32	0.36	0.34	0.32	0.35	12.1%
Senegal	0.28	0.33	0.35	0.32	0.27	0.29	0.36	0.41	0.38	0.42	0.42	55.6%
South Africa	7.69	8.46	7.78	7.32	7.24	7.08	6.78	7.06	7.01	7.16	6.93	-4.2%
Sudan	0.21	0.19	0.18	0.17	0.20	0.15	0.16	0.26	0.28	0.30	0.29	43.6%
United Rep. of Tanzania	0.11	0.09	0.09	0.07	0.07	0.08	0.08	0.13	0.14	0.13	0.14	103.6%
Togo	0.15	0.13	0.13	0.09	0.15	0.13	0.18	0.16	0.15	0.14	0.17	17.7%
Tunisia	0.71	0.85	1.23	1.32	1.48	1.59	1.88	1.95	1.94	1.99	2.01	35.6%
Zambia	0.80	0.90	0.58	0.41	0.33	0.22	0.16	0.18	0.16	0.11	0.13	-61.6%
Zimbabwe	1.34	1.17	1.09	1.08	1.53	1.27	1.02	0.83	0.79	0.75	0.70	-53.9%
Other Africa	0.11	0.12	0.15	0.12	0.13	0.14	0.14	0.15	0.15	0.16	0.17	28.3%
Africa	0.71	0.80	0.86	0.87	0.86	0.83	0.84	0.90	0.89	0.91	0.90	5.0%
Bahrain	13.21	19.53	21.31	25.16	23.73	20.11	21.74	25.03	27.26	28.14	29.08	22.5%
Islamic Rep. of Iran	1.50	2.34	2.40	3.14	3.31	4.29	4.86	5.94	6.44	6.80	7.02	111.8%
Iraq	1.26	1.40	2.44	2.79	2.91	3.67	3.61	3.27	3.31	3.27	3.45	18.4%
Israel	4.65	4.90	5.03	5.77	7.09	8.26	8.71	8.69	8.75	9.01	8.63	21.8%
Jordan	0.83	1.15	1.93	2.78	2.90	2.89	2.98	3.31	3.30	3.35	3.12	7.4%
Kuwait	29.21	22.74	22.40	22.09	11.46	22.76	22.90	29.33	25.66	25.11	25.47	122.3%
Lebanon	1.85	2.06	2.36	2.65	2.15	3.60	3.76	3.94	3.28	2.77	3.68	71.4%
Oman	0.33	0.78	1.88	3.57	5.39	6.63	8.23	10.68	11.44	11.96	12.54	132.8%
Qatar	18.26	28.64	33.94	34.53	30.98	36.31	39.34	42.44	43.24	43.42	42.09	35.9%
Saudi Arabia	2.22	3.26	10.55	10.02	9.85	11.04	12.15	13.87	14.31	14.77	15.79	60.3%
Syrian Arab Republic	1.03	1.36	1.68	2.18	2.44	2.64	2.77	2.50	2.56	2.62	2.56	5.3%
United Arab Emirates	9.20	9.22	18.79	25.11	27.64	28.77	26.50	26.80	27.24	29.91	32.77	18.6%
Yemen	0.18	0.24	0.41	0.47	0.52	0.60	0.73	0.89	0.91	0.92	0.95	82.2%
Middle East	1.91	2.49	3.72	4.39	4.50	5.44	5.91	6.70	6.94	7.21	7.52	66.9%
Albania	1.78	1.85	2.84	2.43	1.90	0.59	1.04	1.47	1.32	1.28	1.23	-35.4%
Bosnia and Herzegovina *	..	..	..	..	5.49	1.01	3.70	4.14	4.54	4.75	5.18	-5.6%
Bulgaria	7.36	8.28	9.46	9.07	8.60	6.36	5.21	5.92	6.13	6.56	6.40	-25.6%
Croatia *	..	..	..	..	4.51	3.39	3.99	4.67	4.67	4.96	4.72	4.6%
Cyprus	2.86	3.39	5.07	5.13	6.62	8.03	9.04	9.23	9.14	9.34	9.49	43.3%
Gibraltar	3.51	3.37	3.99	4.17	6.13	11.97	13.94	15.59	16.24	16.79	17.34	182.7%
FYR of Macedonia *	..	..	..	..	4.46	4.17	4.20	4.34	4.32	4.50	4.40	-1.4%
Malta	2.00	1.97	2.71	3.34	6.35	6.22	5.40	6.68	6.33	6.65	6.23	-1.9%
Romania	5.61	6.62	7.93	7.63	7.20	5.16	3.84	4.24	4.39	4.27	4.18	-41.9%
Serbia *	..	..	..	..	6.01	4.24	5.20	6.08	6.49	6.75	6.70	11.5%
Slovenia *	..	..	..	..	6.26	6.69	7.08	7.79	7.92	7.84	8.27	32.1%
Former Yugoslavia *	3.11	3.58	4.03	5.42	..	..	..	..	..	..	..	..
Non-OECD Europe	4.71	5.44	6.36	6.68	6.43	4.60	4.30	4.84	5.01	5.10	5.05	-21.4%

* Data for individual countries of the Former Yugoslavia are not available prior to 1990.

CO₂ emissions / populationtonnes CO₂ / capita

	1971	1975	1980	1985	1990	1995	2000	2005	2006	2007	2008	% change 90-08
Armenia	..	..	..	..	5.77	1.06	1.11	1.34	1.35	1.56	1.71	-70.4%
Azerbaijan	..	..	..	..	8.83	4.10	3.65	3.81	3.56	3.18	3.37	-61.8%
Belarus	..	..	..	..	12.17	6.02	5.87	6.35	6.80	6.60	6.63	-45.5%
Estonia	..	..	..	..	22.67	11.12	10.63	12.50	11.53	14.35	13.14	-42.1%
Georgia	..	..	..	..	5.25	1.40	0.93	0.95	1.07	1.24	1.08	-79.5%
Kazakhstan	..	..	..	..	14.46	10.56	8.29	10.91	12.13	12.30	12.86	-11.1%
Kyrgyzstan	..	..	..	..	5.08	0.96	0.91	0.98	0.93	1.17	1.12	-77.9%
Latvia	..	..	..	..	6.98	3.52	2.88	3.29	3.50	3.66	3.49	-49.9%
Lithuania	..	..	..	..	8.95	3.90	3.20	3.97	4.02	4.28	4.24	-52.6%
Republic of Moldova	..	..	..	..	6.92	2.52	1.58	2.09	2.00	2.05	1.95	-71.9%
Russian Federation	..	..	..	..	14.72	10.61	10.27	10.59	11.09	11.11	11.24	-23.7%
Tajikistan	..	..	..	..	2.06	0.42	0.35	0.36	0.39	0.47	0.44	-78.4%
Turkmenistan	..	..	..	..	12.71	8.21	8.04	8.56	8.52	9.22	9.41	-26.0%
Ukraine	..	..	..	..	13.26	7.63	5.94	6.49	6.64	6.76	6.69	-49.5%
Uzbekistan	..	..	..	..	5.84	4.46	4.77	4.14	4.24	4.18	4.21	-28.0%
Former Soviet Union *	8.15	10.09	11.49	11.51	12.66	8.35	7.69	8.06	8.40	8.45	8.53	-32.7%
Argentina	3.41	3.30	3.41	2.92	3.08	3.39	3.77	3.90	4.10	4.22	4.36	41.5%
Bolivia	0.50	0.67	0.81	0.75	0.82	1.09	0.92	1.06	1.07	1.29	1.33	62.7%
Brazil	0.93	1.27	1.48	1.23	1.30	1.49	1.73	1.75	1.76	1.81	1.90	46.2%
Chile	2.13	1.63	1.90	1.60	2.43	2.82	3.53	3.86	3.94	4.32	4.35	79.4%
Colombia	1.15	1.15	1.24	1.27	1.36	1.59	1.47	1.33	1.31	1.30	1.35	-0.6%
Costa Rica	0.68	0.85	0.93	0.74	0.85	1.26	1.14	1.25	1.34	1.47	1.45	71.6%
Cuba	2.08	2.70	2.90	3.03	2.60	2.02	2.22	2.30	2.25	2.29	2.71	4.3%
Dominican Republic	0.73	0.98	1.06	0.93	1.05	1.43	1.99	1.85	1.94	1.98	1.99	89.1%
Ecuador	0.60	0.90	1.33	1.33	1.28	1.43	1.51	1.80	1.93	1.93	1.92	49.6%
El Salvador	0.34	0.47	0.36	0.34	0.41	0.82	0.88	0.98	0.96	1.02	0.95	133.9%
Guatemala	0.41	0.49	0.60	0.41	0.37	0.60	0.79	0.87	0.85	0.88	0.78	109.5%
Haiti	0.08	0.08	0.11	0.12	0.13	0.12	0.16	0.21	0.21	0.24	0.24	80.0%
Honduras	0.40	0.42	0.46	0.39	0.44	0.63	0.72	1.02	0.92	1.15	1.08	146.7%
Jamaica	2.91	3.68	3.05	2.01	3.01	3.37	3.78	4.00	4.42	4.75	4.44	47.8%
Netherlands Antilles	89.64	61.14	50.26	25.01	14.37	14.77	22.38	22.60	21.86	23.45	22.91	59.5%
Nicaragua	0.60	0.65	0.55	0.48	0.44	0.53	0.69	0.75	0.72	0.78	0.73	64.7%
Panama	1.64	1.88	1.49	1.21	1.02	1.54	1.59	1.75	1.98	1.94	1.92	88.6%
Paraguay	0.24	0.26	0.44	0.39	0.45	0.72	0.61	0.58	0.59	0.60	0.59	30.1%
Peru	1.15	1.22	1.19	0.93	0.88	0.99	1.02	1.02	0.99	1.06	1.21	37.1%
Trinidad and Tobago	6.26	5.76	7.33	8.15	9.29	9.66	13.79	23.19	29.04	27.55	28.37	205.4%
Uruguay	1.85	1.93	1.91	1.04	1.21	1.41	1.61	1.59	1.85	1.72	2.29	89.3%
Venezuela	4.70	4.93	6.12	5.45	5.32	5.37	5.21	5.14	5.31	5.21	5.21	-2.0%
Other Latin America	3.00	4.06	3.69	3.19	4.15	4.21	4.53	4.75	4.83	4.87	4.92	18.7%
Latin America	1.54	1.71	1.89	1.63	1.70	1.88	2.07	2.13	2.19	2.24	2.31	35.7%
Bangladesh	0.04	0.06	0.08	0.09	0.12	0.16	0.18	0.24	0.25	0.27	0.29	147.4%
Brunei Darussalam	2.93	8.74	13.64	13.16	13.08	15.94	13.96	13.62	19.72	18.34	18.87	44.3%
Cambodia	..	..	..	..	..	0.12	0.19	0.27	0.29	0.31	0.31	..
Chinese Taipei	2.08	2.63	4.04	3.71	5.65	7.41	9.89	11.54	11.85	12.08	11.53	103.9%
India	0.36	0.39	0.43	0.55	0.70	0.84	0.97	1.06	1.13	1.19	1.25	80.0%
Indonesia	0.21	0.29	0.47	0.52	0.79	1.00	1.30	1.47	1.52	1.62	1.69	114.1%
DPR of Korea	4.61	4.77	6.12	6.75	5.66	3.45	3.00	3.14	3.18	2.62	2.91	-48.6%
Malaysia	1.14	1.31	1.76	2.13	2.70	3.81	4.77	5.96	6.06	6.40	6.70	148.0%
Mongolia	..	..	..	6.08	6.01	4.42	3.68	3.76	4.12	4.32	4.33	-27.9%
Myanmar	0.17	0.13	0.15	0.16	0.10	0.16	0.18	0.28	0.25	0.25	0.24	140.1%
Nepal	0.02	0.02	0.03	0.03	0.05	0.08	0.13	0.11	0.11	0.11	0.12	151.6%
Pakistan	0.27	0.29	0.32	0.42	0.55	0.65	0.71	0.76	0.80	0.86	0.81	47.3%
Philippines	0.61	0.69	0.69	0.50	0.63	0.84	0.90	0.84	0.78	0.81	0.80	26.4%
Singapore	2.82	3.71	5.25	5.94	9.45	10.76	10.60	10.46	10.00	9.61	9.16	-3.1%
Sri Lanka	0.22	0.20	0.25	0.22	0.22	0.31	0.57	0.68	0.60	0.65	0.61	177.1%
Thailand	0.45	0.52	0.72	0.77	1.39	2.35	2.56	3.25	3.26	3.37	3.41	145.6%
Vietnam	0.37	0.35	0.28	0.29	0.26	0.38	0.57	0.98	1.02	1.10	1.19	357.4%
Other Asia	0.29	0.32	0.50	0.31	0.28	0.27	0.29	0.34	0.32	0.29	0.30	7.5%
Asia	0.41	0.46	0.55	0.63	0.79	0.95	1.10	1.24	1.29	1.34	1.38	74.4%
People's Rep. of China	0.95	1.15	1.43	1.62	1.95	2.48	2.41	3.89	4.28	4.58	4.91	152.0%
Hong Kong, China	2.27	2.42	2.87	4.10	5.80	5.84	5.98	5.98	6.08	6.27	6.05	4.4%
China	0.96	1.15	1.44	1.63	1.97	2.50	2.42	3.90	4.29	4.58	4.92	149.9%

* Data for individual countries of the Former Soviet Union are not available prior to 1990.

Per capita emissions by sector in 2008 *

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industries **	Manuf. industries and construction	Transport	of which: road	Other sectors	of which: residential
World	4 393	1 792	223	889	988	725	501	285
<i>Annex I Parties</i>	10 906	4 538	537	1 597	2 729	2 335	1 505	877
<i>Annex II Parties</i>	12 174	4 775	626	1 722	3 362	2 953	1 690	937
<i>North America</i>	18 194	7 467	987	2 163	5 486	4 685	2 090	1 106
<i>Europe</i>	7 895	2 606	403	1 260	2 084	1 937	1 543	987
<i>Pacific</i>	10 305	4 616	427	1 979	2 084	1 844	1 200	435
<i>Annex I EIT</i>	8 836	4 555	370	1 472	1 349	924	1 090	772
<i>Non-Annex I Parties</i>	2 669	1 146	149	722	387	346	265	145
<i>Annex I Kyoto Parties</i>	8 970	3 648	457	1 519	1 952	1 661	1 395	829
Non-OECD Total	2 859	1 272	149	750	397	336	290	167
OECD Total	10 615	4 196	565	1 529	2 846	2 521	1 479	827
Canada	16 530	3 579	1 955	2 937	4 861	3 806	3 199	1 227
Mexico	3 831	1 069	470	570	1 420	1 378	301	181
United States	18 376	7 892	881	2 079	5 555	4 781	1 969	1 092
OECD N. America	14 750	5 933	863	1 781	4 511	3 892	1 661	884
Australia	18 478	10 556	1 058	2 333	3 706	3 154	826	357
Japan	9 015	3 698	323	1 938	1 772	1 586	1 285	460
Korea	10 313	4 723	677	1 974	1 732	1 620	1 206	670
New Zealand	7 736	2 188	350	1 427	3 228	2 943	543	92
OECD Pacific	10 307	4 642	487	1 978	1 999	1 790	1 201	492
Austria	8 315	1 823	1 012	1 508	2 649	2 496	1 322	886
Belgium	10 362	2 146	491	2 563	2 530	2 480	2 634	1 737
Czech Republic	11 202	6 108	268	1 986	1 709	1 622	1 130	646
Denmark	8 815	3 965	450	880	2 494	2 324	1 026	532
Finland	10 650	4 577	507	2 289	2 390	2 168	888	356
France	5 743	792	294	1 100	1 945	1 851	1 612	913
Germany	9 789	4 107	317	1 439	1 807	1 703	2 120	1 479
Greece	8 311	4 127	310	818	1 963	1 688	1 093	741
Hungary	5 281	1 833	152	699	1 280	1 252	1 317	858
Iceland	6 888	46	-	2 148	2 844	2 604	1 850	29
Ireland	9 847	3 212	108	1 134	3 016	2 931	2 377	1 587
Italy	7 182	2 453	294	1 135	1 954	1 831	1 346	816
Luxembourg	21 269	2 177	-	3 023	13 166	13 089	2 903	2 750
Netherlands	10 819	3 476	660	2 298	2 126	2 059	2 258	1 023
Norway	7 888	160	2 476	1 677	2 944	2 187	630	105
Poland	7 836	4 156	220	990	1 159	1 119	1 312	821
Portugal	4 937	1 775	194	792	1 761	1 709	415	187
Slovak Republic	6 702	1 599	876	1 722	1 305	1 068	1 199	567
Spain	6 967	2 224	401	1 209	2 392	2 089	741	426
Sweden	4 956	860	273	1 042	2 513	2 379	269	45
Switzerland	5 668	256	141	844	2 237	2 201	2 190	1 401
Turkey	3 707	1 465	118	542	634	556	948	557
United Kingdom	8 323	3 176	530	958	2 034	1 873	1 625	1 246
OECD Europe	7 347	2 609	350	1 155	1 799	1 671	1 433	906
<i>European Union - 27</i>	<i>7 719</i>	<i>2 826</i>	<i>359</i>	<i>1 224</i>	<i>1 890</i>	<i>1 764</i>	<i>1 420</i>	<i>904</i>

* This table shows per capita emissions for the same sectors which are present throughout this publication. In particular, the emissions from electricity and heat production are shown separately and not reallocated as in the table on pages II.61-II.63

** Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

Per capita emissions by sector in 2008

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industries	Manuf. industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	2 859	1 272	149	750	397	336	290	167
Algeria	2 564	698	307	348	573	514	638	638
Angola	586	8	13	141	295	192	129	48
Benin	378	11	-	19	231	231	116	116
Botswana	2 371	593	-	637	1 035	1 014	107	41
Cameroon	227	68	10	16	115	109	19	19
Congo	411	14	-	18	357	295	22	22
Dem. Rep. of Congo	44	-	-	16	10	10	18	5
Côte d'Ivoire	314	126	11	29	76	63	71	26
Egypt	2 135	739	180	500	467	430	249	173
Eritrea	91	38	-	4	22	22	26	11
Ethiopia	85	6	-	21	48	48	11	11
Gabon	2 060	565	24	802	433	433	236	106
Ghana	314	77	6	48	156	144	27	15
Kenya	224	60	12	35	83	79	33	22
Libyan Arab Jamahiriya	7 145	4 043	396	674	1 628	1 627	403	403
Morocco	1 348	479	22	229	346	346	272	127
Mozambique	89	-	1	18	62	57	8	4
Namibia	1 861	420	-	123	904	809	414	-
Nigeria	346	56	70	35	168	167	17	17
Senegal	415	116	2	72	192	173	34	30
South Africa	6 930	4 382	90	933	941	869	584	332
Sudan	292	67	12	29	162	161	21	17
United Rep. of Tanzania	136	25	-	18	77	77	16	14
Togo	171	4	-	13	133	133	21	21
Tunisia	2 009	774	20	356	465	453	393	181
Zambia	126	2	3	62	41	28	18	-
Zimbabwe	704	397	4	113	88	81	103	7
Other Africa	165	43	-	27	67	58	29	11
Africa	904	391	46	143	215	201	110	74
Bahrain	29 077	10 124	5 636	9 045	3 997	3 952	275	275
Islamic Rep. of Iran	7 018	1 734	303	1 574	1 532	1 532	1 875	1 388
Iraq	3 451	1 058	171	830	1 072	1 072	320	320
Israel	8 634	5 351	399	239	1 413	1 413	1 232	379
Jordan	3 118	1 380	118	438	772	766	410	251
Kuwait	25 474	11 641	5 729	3 976	3 940	3 940	188	188
Lebanon	3 680	1 811	-	423	1 049	1 049	397	397
Oman	12 539	4 842	2 274	2 899	1 920	1 920	603	158
Qatar	42 086	9 009	12 926	13 238	6 729	6 729	184	184
Saudi Arabia	15 790	6 249	1 869	3 615	3 894	3 814	164	164
Syrian Arab Republic	2 565	1 184	95	537	568	549	181	74
United Arab Emirates	32 771	16 199	454	9 751	5 610	5 610	758	758
Yemen	951	181	146	107	258	258	260	89
Middle East	7 518	2 669	638	1 674	1 645	1 633	891	641
Albania	1 227	17	49	197	732	648	233	76
Bosnia and Herzegovina	5 181	3 563	39	345	737	725	497	28
Bulgaria	6 399	3 939	173	968	1 083	986	236	121
Croatia	4 720	1 196	365	1 001	1 391	1 285	767	454
Cyprus	9 486	4 828	-	1 428	2 468	2 464	762	359
Gibraltar	17 335	4 486	-	2 233	10 616	10 616	-	-
FYR of Macedonia	4 399	2 990	2	624	583	571	200	69
Malta	6 225	4 774	-	-	1 297	1 297	154	154
Romania	4 180	1 800	308	931	694	634	447	281
Serbia	6 695	4 224	14	1 133	878	758	445	276
Slovenia	8 272	3 088	4	1 198	2 937	2 917	1 045	587
Non-OECD Europe	5 054	2 576	188	885	957	886	450	245

Per capita emissions by sector in 2008

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Electricity and heat production	Other energy industries	Manuf. industries and construction	Transport	of which: road	Other sectors	of which: residential
Armenia	1 708	336	-	645	270	270	458	-
Azerbaijan	3 374	1 447	248	249	603	555	826	732
Belarus	6 631	3 357	151	1 317	678	451	1 128	786
Estonia	13 137	9 849	108	1 078	1 695	1 615	408	142
Georgia	1 079	167	43	167	406	390	295	160
Kazakhstan	12 863	5 331	766	2 866	906	799	2 994	38
Kyrgyzstan	1 122	259	-	319	271	271	273	-
Latvia	3 493	903	-	482	1 566	1 437	542	189
Lithuania	4 241	893	603	900	1 487	1 384	359	190
Republic of Moldova	1 946	927	-	191	285	253	542	373
Russian Federation	11 241	6 164	522	1 619	1 716	931	1 220	892
Tajikistan	444	77	-	-	41	41	325	-
Turkmenistan	9 406	2 697	1 383	-	551	551	4 774	-
Ukraine	6 692	2 851	172	1 969	701	519	999	855
Uzbekistan	4 207	1 248	152	800	329	180	1 678	1 285
Former Soviet Union	8 527	4 243	390	1 451	1 159	705	1 284	769
Argentina	4 358	1 114	408	970	1 071	999	795	484
Bolivia	1 329	320	141	229	478	430	160	133
Brazil	1 899	215	145	564	779	701	196	85
Chile	4 354	1 466	231	833	1 528	1 032	297	192
Colombia	1 348	135	117	427	519	499	151	95
Costa Rica	1 455	133	16	251	952	949	104	28
Cuba	2 713	1 434	12	767	81	80	419	87
Dominican Republic	1 988	982	13	126	578	429	289	258
Ecuador	1 921	362	36	335	945	855	243	214
El Salvador	949	245	8	223	389	389	84	83
Guatemala	776	214	-	120	398	397	44	43
Haiti	239	24	-	54	137	71	24	24
Honduras	1 077	369	-	213	406	406	88	22
Jamaica	4 444	2 271	2	150	960	584	1 061	75
Netherlands Antilles	22 915	4 523	7 527	3 591	6 360	6 360	913	913
Nicaragua	729	282	10	108	258	236	71	16
Panama	1 924	517	-	364	915	425	128	83
Paraguay	591	-	-	17	544	536	29	29
Peru	1 209	253	71	321	457	446	107	62
Trinidad and Tobago	28 373	4 051	6 143	16 053	1 728	1 728	399	399
Uruguay	2 286	807	101	262	783	780	332	117
Venezuela	5 214	865	1 030	1 459	1 618	1 607	244	202
Other Latin America	4 924	2 216	3	395	1 479	1 314	830	350
Latin America	2 312	467	209	605	783	707	248	136
Bangladesh	290	125	1	71	41	32	51	32
Brunei Darussalam	18 873	6 505	3 797	5 156	2 823	2 823	592	285
Cambodia	313	115	-	11	78	78	108	83
Chinese Taipei	11 530	6 663	679	2 232	1 511	1 456	446	209
India	1 252	705	44	245	116	106	142	66
Indonesia	1 688	475	161	574	333	302	145	91
DPR of Korea	2 907	468	2	1 828	51	51	558	4
Malaysia	6 701	2 367	956	1 619	1 561	1 536	197	99
Mongolia	4 331	2 698	15	571	591	454	456	221
Myanmar	238	38	11	61	67	65	61	6
Nepal	117	-	-	39	32	32	44	28
Pakistan	806	249	12	261	190	184	94	74
Philippines	801	328	25	144	250	225	54	28
Singapore	9 158	4 578	1 964	1 090	1 483	1 483	43	43
Sri Lanka	606	193	8	65	292	259	49	17
Thailand	3 405	1 158	242	995	759	752	252	94
Vietnam	1 194	350	-	419	293	269	133	72
Other Asia	302	118	-	63	73	50	47	9
Asia	1 385	634	74	338	205	192	134	64
People's Rep. of China	4 910	2 345	203	1 635	341	249	385	215
Hong Kong, China	6 055	4 124	-	950	616	616	364	118
China	4 916	2 354	202	1 632	343	251	385	215

Per capita emissions with electricity and heat allocated to consuming sectors * in 2008

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Other energy industries **	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
World	4 393	307	1 606	1 011	725	1 469	780
<i>Annex I Parties</i>	<i>10 906</i>	<i>784</i>	<i>3 076</i>	<i>2 804</i>	<i>2 335</i>	<i>4 241</i>	<i>2 284</i>
<i>Annex II Parties</i>	<i>12 174</i>	<i>778</i>	<i>3 210</i>	<i>3 415</i>	<i>2 953</i>	<i>4 772</i>	<i>2 420</i>
<i>North America</i>	<i>18 194</i>	<i>1 223</i>	<i>4 085</i>	<i>5 506</i>	<i>4 685</i>	<i>7 380</i>	<i>3 625</i>
<i>Europe</i>	<i>7 895</i>	<i>497</i>	<i>2 254</i>	<i>2 138</i>	<i>1 937</i>	<i>3 007</i>	<i>1 720</i>
<i>Pacific</i>	<i>10 305</i>	<i>524</i>	<i>3 506</i>	<i>2 166</i>	<i>1 844</i>	<i>4 109</i>	<i>1 762</i>
<i>Annex I EIT</i>	<i>8 836</i>	<i>912</i>	<i>3 098</i>	<i>1 494</i>	<i>924</i>	<i>3 332</i>	<i>2 199</i>
<i>Non-Annex I Parties</i>	<i>2 669</i>	<i>189</i>	<i>1 309</i>	<i>395</i>	<i>346</i>	<i>775</i>	<i>403</i>
<i>Annex I Kyoto Parties</i>	<i>8 970</i>	<i>705</i>	<i>2 838</i>	<i>2 039</i>	<i>1 661</i>	<i>3 388</i>	<i>1 906</i>
Non-OECD Total	2 859	226	1 347	416	336	869	488
OECD Total	10 615	701	2 913	2 892	2 521	4 109	2 092
Canada	16 530	2 147	4 196	4 887	3 806	5 300	2 259
Mexico	3 831	508	1 203	1 426	1 378	694	425
United States	18 376	1 106	4 006	5 570	4 781	7 694	3 809
OECD N. America	14 750	1 052	3 394	4 527	3 892	5 776	2 858
Australia	18 478	1 575	6 822	3 839	3 154	6 242	3 110
Japan	9 015	378	3 077	1 842	1 586	3 717	1 540
Korea	10 313	686	4 450	1 755	1 620	3 422	1 418
New Zealand	7 736	383	2 224	3 258	2 943	1 870	790
OECD Pacific	10 307	561	3 757	2 065	1 790	3 925	1 664
Austria	8 315	1 043	2 202	2 724	2 496	2 345	1 462
Belgium	10 362	614	3 557	2 569	2 480	3 623	2 199
Czech Republic	11 202	761	4 133	1 855	1 622	4 452	2 411
Denmark	8 815	517	1 611	2 518	2 324	4 169	2 298
Finland	10 650	551	4 540	2 415	2 168	3 144	1 659
France	5 743	339	1 321	1 966	1 851	2 117	1 157
Germany	9 789	420	3 165	1 909	1 703	4 296	2 625
Greece	8 311	458	1 896	1 980	1 688	3 977	2 039
Hungary	5 281	332	1 187	1 321	1 252	2 439	1 477
Iceland	6 888	-	2 181	2 844	2 604	1 862	36
Ireland	9 847	126	2 090	3 022	2 931	4 609	2 608
Italy	7 182	477	2 295	2 025	1 831	2 385	1 268
Luxembourg	21 269	-	4 370	13 200	13 089	3 699	3 092
Netherlands	10 819	839	3 694	2 166	2 059	4 120	1 692
Norway	7 888	2 481	1 746	2 945	2 187	715	153
Poland	7 836	633	2 209	1 228	1 119	3 766	2 296
Portugal	4 937	223	1 502	1 778	1 709	1 435	640
Slovak Republic	6 702	955	2 337	1 330	1 068	2 080	1 012
Spain	6 967	455	2 054	2 416	2 089	2 042	1 015
Sweden	4 956	286	1 340	2 524	2 379	805	370
Switzerland	5 668	141	929	2 250	2 201	2 348	1 480
Turkey	3 707	140	1 251	643	556	1 674	891
United Kingdom	8 323	614	2 023	2 108	1 873	3 578	2 276
OECD Europe	7 347	456	2 144	1 851	1 671	2 896	1 647
<i>European Union - 27</i>	<i>7 719</i>	<i>486</i>	<i>2 266</i>	<i>1 947</i>	<i>1 764</i>	<i>3 019</i>	<i>1 725</i>

* Emissions from electricity and heat generation have been allocated to final consuming sectors in proportion to the electricity and heat consumed. The detailed unallocated emissions are shown in the table on pages II.58-II.60.

** Includes emissions from own use in petroleum refining, the manufacture of solid fuels, coal mining, oil and gas extraction and other energy-producing industries.

Per capita emissions with electricity and heat allocated to consuming sectors in 2008

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Other energy industries	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Non-OECD Total	2 859	226	1 347	416	336	869	488
Algeria	2 564	320	569	582	514	1 093	1 093
Angola	586	13	144	295	192	135	53
Benin	378	-	21	231	231	125	121
Botswana	2 371	-	896	1 035	1 014	440	178
Cameroon	227	10	55	115	109	47	35
Congo	411	-	25	357	295	29	29
Dem. Rep. of Congo	44	-	16	10	10	18	5
Côte d'Ivoire	314	11	62	76	63	164	70
Egypt	2 135	180	747	467	430	741	462
Eritrea	91	-	14	22	22	55	28
Ethiopia	85	-	23	48	48	14	13
Gabon	2 060	36	951	435	433	638	395
Ghana	314	6	85	156	144	67	44
Kenya	224	12	70	83	79	58	37
Libyan Arab Jamahiriya	7 145	396	1 374	1 628	1 627	3 746	1 555
Morocco	1 348	35	406	369	346	537	281
Mozambique	89	1	18	62	57	8	4
Namibia	1 861	-	196	904	809	761	-
Nigeria	346	70	46	168	167	62	48
Senegal	415	2	102	192	173	119	73
South Africa	6 930	334	3 350	1 016	869	2 231	1 159
Sudan	292	12	39	162	161	78	54
United Rep. of Tanzania	136	1	29	77	77	29	25
Togo	171	-	14	133	133	24	24
Tunisia	2 009	20	708	475	453	805	382
Zambia	126	3	63	41	28	19	1
Zimbabwe	704	4	288	88	81	325	125
Other Africa	165	1	37	67	58	60	27
Africa	904	56	313	219	201	316	193
Bahrain	29 077	5 636	10 355	3 997	3 952	9 088	5 747
Islamic Rep. of Iran	7 018	323	2 143	1 534	1 532	3 019	1 941
Iraq	3 451	171	830	1 072	1 072	1 378	320
Israel	8 634	399	1 640	1 413	1 413	5 182	2 084
Jordan	3 118	130	792	772	766	1 424	773
Kuwait	25 474	7 397	3 976	3 940	3 940	10 160	6 797
Lebanon	3 680	-	898	1 049	1 049	1 733	1 088
Oman	12 539	2 274	3 432	1 920	1 920	4 912	2 710
Qatar	42 086	12 926	15 651	6 729	6 729	6 780	2 370
Saudi Arabia	15 790	2 257	4 344	3 894	3 814	5 295	3 496
Syrian Arab Republic	2 565	95	1 005	568	549	896	789
United Arab Emirates	32 771	454	11 689	5 610	5 610	15 019	7 672
Yemen	951	146	107	258	258	440	209
Middle East	7 518	717	2 180	1 646	1 633	2 974	1 739
Albania	1 227	49	200	732	648	246	86
Bosnia and Herzegovina	5 181	39	1 301	737	725	3 103	1 664
Bulgaria	6 399	541	2 441	1 117	986	2 301	1 400
Croatia	4 720	389	1 283	1 408	1 285	1 640	977
Cyprus	9 486	7	2 089	2 468	2 464	4 922	2 110
Gibraltar	17 335	-	2 233	10 616	10 616	4 486	-
FYR of Macedonia	4 399	123	1 684	594	571	1 998	1 326
Malta	6 225	-	1 438	1 297	1 297	3 491	1 816
Romania	4 180	503	1 618	731	634	1 328	908
Serbia	6 695	107	2 348	909	758	3 331	2 394
Slovenia	8 272	37	2 651	2 977	2 917	2 607	1 474
Non-OECD Europe	5 054	351	1 763	988	886	1 953	1 238

Per capita emissions with electricity and heat allocated to consuming sectors in 2008

kg CO₂ / capita

	Total CO ₂ emissions from fuel combustion	Other energy industries	Manufacturing industries and construction	Transport	of which: road	Other sectors	of which: residential
Armenia	1 708	-	733	277	270	698	126
Azerbaijan	3 374	390	709	628	555	1 646	1 232
Belarus	6 631	353	2 637	741	451	2 900	1 862
Estonia	13 137	496	3 250	1 754	1 615	7 638	4 334
Georgia	1 079	67	188	414	390	410	226
Kazakhstan	12 863	944	5 597	1 026	799	5 296	1 088
Kyrgyzstan	1 122	7	382	273	271	459	58
Latvia	3 493	16	606	1 575	1 437	1 296	645
Lithuania	4 241	646	1 111	1 491	1 384	993	573
Republic of Moldova	1 946	49	389	293	253	1 215	720
Russian Federation	11 241	1 368	3 780	1 932	931	4 161	2 772
Tajikistan	444	-	32	42	41	369	16
Turkmenistan	9 406	1 729	687	599	551	6 390	401
Ukraine	6 692	318	3 365	819	519	2 191	1 761
Uzbekistan	4 207	178	1 080	353	180	2 597	1 417
Former Soviet Union	8 527	884	3 000	1 299	705	3 343	2 035
Argentina	4 358	408	1 466	1 077	999	1 407	809
Bolivia	1 329	141	323	478	430	387	252
Brazil	1 899	145	668	780	701	306	135
Chile	4 354	249	1 821	1 539	1 032	746	429
Colombia	1 348	117	470	519	499	241	152
Costa Rica	1 455	16	281	952	949	206	80
Cuba	2 713	12	1 142	109	80	1 449	708
Dominican Republic	1 988	13	525	578	429	871	582
Ecuador	1 921	36	444	945	855	496	343
El Salvador	949	8	317	389	389	235	161
Guatemala	776	-	203	398	397	175	115
Haiti	239	-	62	137	71	40	33
Honduras	1 077	-	313	406	406	358	174
Jamaica	4 444	2	1 868	960	584	1 613	418
Netherlands Antilles	22 915	7 527	6 078	6 360	6 360	2 950	913
Nicaragua	729	10	188	258	236	273	106
Panama	1 924	-	411	915	425	598	238
Paraguay	591	-	17	544	536	29	29
Peru	1 209	71	460	457	446	222	122
Trinidad and Tobago	28 373	6 143	18 439	1 728	1 728	2 063	1 667
Uruguay	2 286	101	513	783	780	888	414
Venezuela	5 214	1 051	1 810	1 621	1 607	733	474
Other Latin America	4 924	3	654	1 479	1 314	2 787	604
Latin America	2 312	210	813	785	707	504	260
Bangladesh	290	1	142	41	32	106	74
Brunei Darussalam	18 873	3 797	6 285	2 823	2 823	5 968	2 782
Cambodia	313	-	36	78	78	199	135
Chinese Taipei	11 530	811	5 870	1 545	1 456	3 304	1 535
India	1 252	44	573	129	106	506	212
Indonesia	1 688	161	751	333	302	444	276
DPR of Korea	2 907	2	2 063	51	51	793	4
Malaysia	6 701	956	2 711	1 566	1 536	1 467	593
Mongolia	4 331	15	1 599	621	454	2 097	1 349
Myanmar	238	11	77	67	65	83	21
Nepal	117	-	40	32	32	45	28
Pakistan	806	12	329	190	184	275	189
Philippines	801	25	257	251	225	268	139
Singapore	9 158	2 261	2 661	1 533	1 483	2 703	857
Sri Lanka	606	8	135	292	259	171	95
Thailand	3 405	242	1 486	759	752	918	340
Vietnam	1 194	-	600	296	269	299	206
Other Asia	302	8	115	73	50	106	36
Asia	1 385	77	624	211	192	473	223
People's Rep. of China	4 910	345	3 121	361	249	1 082	606
Hong Kong, China	6 055	-	1 291	616	616	4 147	1 156
China	4 916	343	3 109	362	251	1 101	610

Electricity and heat output *

terawatt hours

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	% change 90-08
World	..	17 073.0	18 780.0	18 932.7	19 550.5	20 288.4	21 121.4	22 044.8	22 913.7	23 573.5	23 864.7	..
<i>Annex I Parties</i>	..	12 739.2	13 146.5	13 041.9	13 268.9	13 493.7	13 724.8	14 008.2	14 224.4	14 189.8	14 141.9	..
<i>Annex II Parties</i>	..	8 194.5	9 168.3	9 027.5	9 298.3	9 469.9	9 698.4	9 942.7	10 055.3	10 096.8	10 098.0	..
<i>North America</i>	..	4 241.0	4 731.4	4 523.4	4 741.2	4 757.6	4 825.0	4 975.7	5 051.9	5 129.0	5 152.6	..
<i>Europe</i>	2 547.1	2 779.4	3 131.9	3 202.8	3 232.9	3 399.8	3 518.7	3 581.3	3 610.6	3 540.2	3 562.4	39.9%
<i>Pacific</i>	1 025.5	1 174.1	1 305.1	1 301.3	1 324.2	1 312.6	1 354.8	1 385.7	1 392.8	1 427.6	1 383.0	34.9%
<i>Annex I EIT</i>	..	4 458.4	3 848.7	3 888.2	3 836.4	3 878.9	3 870.4	3 893.6	3 981.7	3 889.4	3 833.6	..
<i>Non-Annex I Parties</i>	..	4 333.8	5 633.5	5 890.8	6 281.6	6 794.7	7 396.6	8 036.6	8 689.2	9 383.7	9 722.9	..
<i>Annex I Kyoto Parties</i>	..	8 875.4	8 797.6	8 885.3	8 899.5	9 085.0	9 244.1	9 386.8	9 498.8	9 402.0	9 332.5	..
Non-OECD Total	..	8 004.1	8 513.4	8 762.1	9 085.6	9 613.1	10 161.1	10 775.3	11 491.3	12 063.6	12 342.6	..
OECD Total	..	9 068.8	10 266.5	10 170.6	10 464.9	10 675.3	10 960.3	11 269.5	11 422.4	11 509.9	11 522.1	..
Canada	490.0	568.8	615.6	600.3	611.7	601.0	611.3	637.4	626.4	651.8	660.6	34.8%
Mexico	115.8	144.7	196.5	202.6	207.0	203.8	218.8	243.6	252.0	263.5	258.9	123.5%
United States	..	3 672.2	4 115.8	3 923.2	4 129.5	4 156.5	4 213.7	4 338.3	4 425.5	4 477.2	4 492.1	..
OECD N. America	..	4 385.7	4 927.9	4 726.0	4 948.1	4 961.3	5 043.8	5 219.3	5 303.9	5 392.5	5 411.5	..
Australia	154.9	172.8	209.9	224.3	227.4	226.3	236.3	245.2	247.0	250.8	257.1	66.0%
Japan	837.9	964.8	1 055.5	1 036.8	1 055.6	1 045.0	1 075.5	1 097.1	1 101.7	1 132.7	1 081.8	29.1%
Korea	105.4	190.8	327.4	347.6	369.9	382.4	418.1	441.3	454.8	481.1	499.9	374.5%
New Zealand	32.7	36.4	39.7	40.2	41.2	41.4	43.0	43.4	44.1	44.1	44.1	34.9%
OECD Pacific	1 130.9	1 364.9	1 632.5	1 648.9	1 694.2	1 695.0	1 772.9	1 827.1	1 847.6	1 908.7	1 882.9	66.5%
Austria	57.2	66.1	73.2	74.2	73.9	72.5	77.7	80.6	78.5	80.0	83.2	45.4%
Belgium	73.0	76.3	89.2	85.2	87.3	90.0	90.9	91.9	93.9	95.6	92.3	26.4%
Czech Republic	105.3	109.4	111.6	115.7	115.6	123.7	123.9	120.6	120.1	121.5	117.1	11.2%
Denmark	51.6	69.7	69.2	73.4	74.6	82.4	76.5	71.9	81.0	73.0	70.8	37.0%
Finland	78.5	91.2	104.8	112.5	115.1	131.6	133.1	115.9	137.7	134.6	129.9	65.5%
France	422.8	497.5	573.7	591.3	601.4	607.8	615.8	619.9	614.8	609.6	614.0	45.2%
Germany	672.2	648.5	660.1	671.1	669.8	799.8	810.9	839.8	854.0	759.8	764.5	13.7%
Greece	34.8	41.3	53.8	53.4	54.3	58.4	59.3	60.0	60.8	63.2	63.4	82.4%
Hungary	49.0	51.1	54.4	56.3	53.4	51.9	51.1	53.4	52.9	55.8	55.6	13.6%
Iceland	6.0	7.2	9.9	10.2	11.3	11.2	11.4	11.3	12.8	14.5	19.5	226.2%
Ireland	14.2	17.6	23.7	24.6	24.8	24.9	25.2	25.6	27.1	27.9	29.4	106.3%
Italy	213.1	237.4	269.9	271.9	277.5	286.3	348.4	350.5	365.7	365.0	368.6	72.9%
Luxembourg	0.6	0.6	0.7	0.9	3.2	3.3	4.0	4.1	4.3	3.8	3.4	441.9%
Netherlands	76.1	110.7	132.7	136.7	143.3	143.9	151.4	147.7	137.7	143.9	145.8	91.5%
Norway	123.4	124.2	141.9	122.0	133.2	110.1	113.6	140.8	124.9	140.1	145.9	18.2%
Poland	339.9	253.9	237.8	246.6	240.1	252.3	248.6	250.0	255.5	247.9	242.4	-28.7%
Portugal	28.7	33.6	44.9	48.0	48.0	49.1	47.8	50.0	52.4	50.8	49.2	71.4%
Slovak Republic	34.8	38.1	41.0	48.1	46.4	46.4	45.4	45.9	44.2	39.7	39.8	14.4%
Spain	151.2	165.6	222.2	233.2	241.6	257.9	277.2	288.9	295.5	301.8	311.1	105.8%
Sweden	167.7	193.6	189.1	209.9	194.9	184.2	201.0	208.7	193.7	198.1	199.2	18.8%
Switzerland	58.2	65.9	70.2	75.4	69.7	69.9	68.5	62.6	67.0	71.2	72.1	23.9%
Turkey	57.5	86.2	129.4	126.2	134.2	144.8	155.9	171.8	187.4	203.6	210.2	265.4%
United Kingdom	317.8	332.5	402.7	408.9	408.9	416.6	406.0	411.3	408.6	407.1	400.2	25.9%
OECD Europe	3 133.6	3 318.2	3 706.1	3 795.7	3 822.6	4 019.0	4 143.7	4 223.1	4 270.9	4 208.7	4 227.6	34.9%
<i>European Union - 27</i>	..	3 338.4	3 589.5	3 706.7	3 711.8	3 923.9	4 031.9	4 074.0	4 117.0	4 013.0	4 017.0	..

* Includes electricity, CHP and heat only from both main activity producer and autoproducer plants. Due to missing data for heat in 1990, the output for some countries and regions is not available.

Electricity and heat output

terawatt hours

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	% change 90-08
Non-OECD Total	..	8 004.1	8 513.4	8 762.1	9 085.6	9 613.1	10 161.1	10 775.3	11 491.3	12 063.6	12 342.6	..
Algeria	..	19.7	25.4	26.6	27.6	29.6	31.3	33.9	35.2	37.2	40.2	..
Angola	..	1.0	1.4	1.6	1.8	2.0	2.2	2.6	3.0	3.3	4.0	..
Benin	..	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	..
Botswana	..	1.0	0.9	1.0	1.1	1.1	1.0	1.0	1.0	0.7	0.6	..
Cameroon	..	2.8	3.5	3.5	3.3	3.7	4.1	4.0	5.1	5.8	5.6	..
Congo	..	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.5	..
Dem. Rep. of Congo	..	6.2	6.0	6.0	6.1	6.2	7.1	7.4	7.5	7.9	7.5	..
Côte d'Ivoire	..	2.9	4.8	4.9	5.3	5.1	5.5	5.7	5.7	5.6	5.8	..
Egypt	..	52.0	78.1	83.3	89.2	95.2	101.3	108.7	115.4	125.1	131.0	..
Eritrea	..	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	..
Ethiopia	..	1.5	1.7	2.0	2.0	2.3	2.5	2.8	3.3	3.5	3.8	..
Gabon	..	1.1	1.3	1.4	1.5	1.5	1.5	1.6	1.7	1.8	2.0	..
Ghana	..	6.1	7.2	7.9	7.3	5.9	6.0	6.8	8.4	7.0	8.4	..
Kenya	..	4.2	4.1	4.6	5.0	5.3	5.7	6.1	6.6	6.8	7.1	..
Libyan Arab Jamahiriya	..	11.4	15.5	16.1	17.5	18.9	20.2	22.3	24.0	25.7	28.7	..
Morocco	..	12.1	12.9	15.0	16.1	17.4	18.5	19.9	20.4	20.5	20.8	..
Mozambique	..	0.4	9.7	11.9	12.7	10.9	11.7	13.3	14.7	16.1	15.1	..
Namibia	..	1.2	1.3	1.4	1.4	1.6	1.6	1.6	1.5	1.7	2.1	..
Nigeria	..	15.9	14.7	15.5	21.5	20.2	24.3	23.5	23.1	23.0	21.1	..
Senegal	..	1.1	1.9	2.2	2.5	2.6	2.7	3.0	2.5	2.8	2.5	..
South Africa	..	186.6	207.8	208.2	215.7	231.2	240.9	242.1	250.9	260.5	255.5	..
Sudan	..	1.9	2.6	2.8	3.1	3.4	3.5	3.8	4.2	4.5	4.5	..
United Rep. of Tanzania	..	1.9	2.5	2.8	2.9	2.7	2.9	3.6	3.5	4.2	4.4	..
Togo	..	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	..
Tunisia	..	7.7	10.6	11.4	11.8	12.4	13.1	13.8	14.1	14.7	15.3	..
Zambia	..	7.9	7.8	7.9	8.2	8.3	8.5	8.9	9.9	9.8	9.7	..
Zimbabwe	..	7.8	7.0	7.9	8.6	8.8	9.7	10.3	8.5	8.5	8.0	..
Other Africa	..	8.9	11.8	12.2	12.6	12.9	13.8	14.2	14.1	15.0	15.9	..
Africa	..	364.2	441.4	458.9	485.6	510.1	540.6	561.9	585.5	612.7	620.7	..
Bahrain	..	4.6	6.3	6.8	7.3	7.8	8.4	8.9	9.7	10.9	11.9	..
Islamic Rep. of Iran	..	85.0	121.4	130.1	140.8	152.6	167.0	178.3	199.6	204.0	214.5	..
Iraq	..	29.0	31.9	32.3	33.9	28.3	32.3	30.4	31.9	33.2	36.8	..
Israel	..	30.4	42.7	44.0	45.5	47.0	47.2	48.6	50.6	53.8	56.4	..
Jordan	..	5.6	7.4	7.5	8.1	8.0	9.0	9.7	11.1	13.0	13.8	..
Kuwait	..	24.1	32.9	34.8	36.9	39.8	41.3	43.7	47.6	48.8	51.7	..
Lebanon	..	5.5	7.8	8.2	9.7	10.5	10.2	10.1	9.3	9.6	10.6	..
Oman	..	6.5	9.1	9.7	10.3	10.7	11.5	12.6	13.3	14.1	15.7	..
Qatar	..	6.0	9.1	10.0	10.9	12.0	13.2	14.4	17.1	19.5	21.6	..
Saudi Arabia	..	97.8	126.2	133.7	141.7	153.0	159.9	176.1	181.4	190.5	204.2	..
Syrian Arab Republic	..	16.6	25.2	26.7	28.0	29.5	32.1	34.9	37.3	38.6	41.0	..
United Arab Emirates	..	25.0	39.9	43.2	46.9	49.5	52.4	60.7	66.8	76.1	86.3	..
Yemen	..	2.4	3.4	3.6	3.8	4.1	4.4	4.8	5.4	6.0	6.5	..
Middle East	..	338.6	463.3	490.5	523.7	552.9	588.8	633.2	681.0	718.1	771.2	..
Albania	..	4.5	4.8	3.7	3.7	5.3	5.6	5.5	5.1	2.9	3.8	..
Bosnia and Herzegovina	..	4.5	10.9	11.1	11.3	11.9	13.5	13.7	14.4	13.0	14.5	..
Bulgaria	..	78.9	54.7	57.8	56.0	57.3	55.5	58.4	59.5	57.4	61.4	..
Croatia	..	12.5	13.8	15.6	15.5	16.2	16.7	16.1	15.6	15.3	15.5	..
Cyprus	..	2.5	3.4	3.6	3.8	4.1	4.2	4.4	4.7	4.9	5.1	..
Gibraltar	..	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	..
FYR of Macedonia	..	7.7	8.9	8.2	7.9	8.5	8.3	8.6	8.6	8.0	7.7	..
Malta	..	1.6	1.9	1.9	2.1	2.2	2.2	2.2	2.3	2.3	2.3	..
Romania	..	139.0	104.9	107.1	98.2	97.0	94.1	94.9	97.0	92.3	92.9	..
Serbia	..	39.8	39.0	40.6	40.9	41.3	45.0	50.0	48.8	48.2	46.3	..
Slovenia	..	15.4	16.2	17.1	17.1	16.5	18.0	17.9	17.8	17.5	19.0	..
Non-OECD Europe	..	306.5	258.7	266.9	256.6	260.4	263.3	271.9	274.0	262.0	268.8	..

Electricity and heat output

terawatt hours

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	% change 90-08
Armenia	..	6.5	6.8	6.3	6.0	5.9	6.4	6.8	6.5	6.6	6.3	..
Azerbaijan	..	28.4	23.4	24.4	25.6	27.8	28.1	27.5	30.1	29.6	30.1	..
Belarus	..	105.4	103.6	107.2	105.7	107.3	111.1	111.2	112.7	107.1	107.1	..
Estonia	..	17.4	16.0	16.0	16.1	17.4	17.8	17.6	17.2	19.4	17.6	..
Georgia	..	8.9	7.4	6.9	8.1	8.1	7.9	8.0	7.7	8.8	9.0	..
Kazakhstan	..	163.0	130.2	137.2	150.6	163.4	168.8	174.1	168.6	185.2	190.4	..
Kyrgyzstan	..	17.2	18.7	17.3	15.2	17.5	18.4	18.5	19.1	18.4	14.6	..
Latvia	..	16.8	13.0	13.7	13.2	13.3	13.3	13.6	13.2	12.7	12.6	..
Lithuania	..	32.1	24.5	27.6	31.3	33.1	32.5	28.3	26.6	27.1	26.2	..
Republic of Moldova	..	10.2	5.4	5.9	5.1	5.3	7.2	7.7	8.0	7.6	7.2	..
Russian Federation	..	3 095.9	2 678.4	2 674.9	2 638.5	2 665.9	2 665.1	2 683.1	2 780.0	2 720.4	2 684.7	..
Tajikistan	..	15.7	15.1	15.3	16.2	17.5	17.5	18.1	18.0	18.6	17.1	..
Turkmenistan	..	9.8	11.2	12.0	12.1	12.2	13.5	14.5	15.5	16.9	17.1	..
Ukraine	..	492.5	378.7	384.4	389.4	380.5	377.2	382.5	369.2	355.1	341.6	..
Uzbekistan	..	77.6	76.5	77.4	80.2	78.7	78.2	76.8	79.4	77.6	76.8	..
Former Soviet Union *	..	4 097.4	3 508.9	3 526.6	3 513.4	3 554.1	3 563.2	3 588.3	3 671.9	3 611.2	3 558.4	..
Argentina	..	67.0	88.9	90.1	84.5	92.0	100.2	105.5	115.0	115.1	121.4	..
Bolivia	..	3.0	3.9	4.0	4.2	4.3	4.5	4.9	5.3	5.8	6.2	..
Brazil	..	275.6	350.0	329.2	346.9	366.3	389.1	404.6	421.6	447.5	464.1	..
Chile	..	28.0	40.1	42.5	43.7	46.8	51.2	52.5	55.3	58.5	59.7	..
Colombia	..	42.7	43.2	43.5	45.1	46.6	49.8	50.4	53.9	55.3	56.0	..
Costa Rica	..	4.9	6.9	6.7	7.5	7.7	8.5	8.3	8.7	9.1	9.5	..
Cuba	..	12.5	15.0	15.3	15.7	15.8	15.6	15.3	16.5	17.6	17.7	..
Dominican Republic	..	5.5	8.5	10.3	11.5	13.5	13.8	12.9	14.2	14.8	15.4	..
Ecuador	..	8.4	10.6	11.1	11.9	11.5	12.6	12.4	13.9	16.2	18.6	..
El Salvador	..	3.4	3.9	3.9	4.1	4.4	4.4	4.8	5.6	5.8	6.0	..
Guatemala	..	3.4	6.0	5.9	6.2	6.6	7.0	7.6	7.9	8.8	8.7	..
Haiti	..	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.6	0.5	0.5	..
Honduras	..	2.7	3.7	3.9	4.1	4.5	4.9	5.6	6.0	6.3	6.5	..
Jamaica	..	5.8	6.6	6.7	6.9	7.1	7.2	7.4	7.5	7.8	7.8	..
Netherlands Antilles	..	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.2	..
Nicaragua	..	1.8	2.3	2.5	2.7	2.7	2.8	2.9	3.0	3.2	3.4	..
Panama	..	3.5	4.9	5.1	5.3	5.6	5.8	5.8	6.0	6.5	6.4	..
Paraguay	..	42.2	53.5	45.3	48.2	51.8	51.9	51.2	53.8	53.7	55.5	..
Peru	..	16.1	19.9	20.8	22.0	22.9	24.3	25.5	27.4	29.9	32.4	..
Trinidad and Tobago	..	4.3	5.5	5.6	5.6	6.4	6.4	7.1	7.0	7.7	7.9	..
Uruguay	..	6.3	7.6	9.3	9.6	8.6	5.9	7.7	5.6	9.4	8.8	..
Venezuela	..	73.4	85.3	90.1	91.9	91.8	98.6	106.0	111.8	113.8	119.3	..
Other Latin America	..	27.8	31.3	32.3	33.5	34.6	35.6	36.7	35.9	35.9	36.5	..
Latin America	..	640.0	799.2	785.7	812.8	853.5	901.8	936.7	983.5	1 030.5	1 069.6	..
Bangladesh	..	10.8	15.8	17.4	18.7	19.7	24.7	26.5	29.9	31.3	35.0	..
Brunei Darussalam	..	2.0	2.5	2.6	2.7	3.2	3.3	3.3	3.3	3.4	3.4	..
Cambodia	..	0.2	0.5	0.5	0.6	0.6	0.8	0.9	1.1	1.3	1.5	..
Chinese Taipei	..	129.1	180.6	184.5	195.2	205.2	215.1	223.5	231.6	239.2	234.9	..
India	..	417.6	562.2	581.0	598.4	635.2	667.6	699.1	753.0	801.3	830.1	..
Indonesia	..	58.9	92.6	101.6	108.2	112.9	120.2	127.4	133.1	142.2	149.4	..
DPR of Korea	..	23.0	19.4	20.2	19.8	21.0	22.0	22.9	22.4	21.5	23.2	..
Malaysia	..	45.5	69.2	71.4	74.2	78.5	82.0	84.8	89.8	97.5	97.4	..
Mongolia	..	10.6	11.0	10.7	11.2	11.5	12.4	12.6	12.8	12.8	13.2	..
Myanmar	..	4.1	5.1	4.7	5.1	5.4	5.6	6.0	6.2	5.6	6.6	..
Nepal	..	1.2	1.7	1.9	2.1	2.3	2.4	2.6	2.7	3.0	3.1	..
Pakistan	..	57.0	68.1	72.4	75.7	80.8	85.7	93.8	98.4	95.7	91.6	..
Philippines	..	33.6	45.3	47.1	48.5	52.9	56.0	56.6	56.8	59.6	60.8	..
Singapore	..	22.2	31.7	33.1	34.7	35.3	36.8	38.2	39.4	41.1	41.7	..
Sri Lanka	..	4.8	7.0	6.8	7.1	7.7	8.2	9.3	9.5	9.9	9.2	..
Thailand	..	80.1	96.0	102.4	109.0	117.0	125.7	132.2	138.7	143.4	147.4	..
Vietnam	..	14.6	26.6	30.6	35.8	40.9	46.0	53.5	60.5	66.9	73.0	..
Other Asia	..	8.9	13.2	14.1	14.8	15.5	15.9	16.2	18.0	19.9	21.4	..
Asia	..	924.0	1 248.4	1 303.0	1 361.7	1 445.7	1 530.2	1 609.5	1 707.1	1 795.7	1 843.0	..
People's Rep. of China	..	1 305.6	1 762.2	1 898.0	2 097.5	2 401.0	2 736.0	3 135.4	3 549.8	3 994.5	4 172.9	..
Hong Kong, China	..	27.9	31.3	32.4	34.3	35.5	37.1	38.5	38.6	39.0	38.0	..
China	..	1 333.5	1 793.5	1 930.4	2 131.8	2 436.5	2 773.1	3 173.8	3 588.4	4 033.5	4 210.9	..

CO₂ emissions per kWh from electricity and heat generation *grammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
World	..	470	485	491	486	495	500	500	501	507	502	504
<i>Annex I Parties</i>	..	418	427	434	425	428	420	418	412	419	409	413
<i>Annex II Parties</i>	..	458	455	467	452	453	446	443	432	440	425	433
<i>North America</i>	..	526	539	566	522	528	526	522	500	504	490	498
<i>Europe</i>	399	354	325	324	330	325	315	307	310	316	299	308
<i>Pacific</i>	482	460	466	474	501	519	502	508	502	519	512	511
<i>Annex I EIT</i>	..	342	357	355	357	366	355	355	359	360	362	360
<i>Non-Annex I Parties</i>	..	624	620	616	616	629	648	643	647	641	638	642
<i>Annex I Kyoto Parties</i>	..	351	353	354	359	364	353	349	352	357	348	352
Non-OECD Total	..	472	511	509	517	534	551	553	563	564	567	564
OECD Total	..	469	463	475	459	460	453	449	439	448	433	440
Canada	203	184	222	231	216	229	214	200	201	197	181	193
Mexico	549	528	568	571	568	589	517	518	475	486	440	467
United States	..	579	586	617	567	571	571	570	542	549	535	542
OECD N. America	..	526	540	566	524	530	525	522	499	504	487	497
Australia	815	810	853	860	929	918	899	910	926	876	883	895
Japan	434	411	401	401	422	444	427	429	418	452	436	436
Korea	520	540	448	479	451	449	475	460	464	455	459	460
New Zealand	115	96	154	195	166	207	193	236	229	193	214	212
OECD Pacific	485	471	462	475	490	503	496	497	493	503	498	498
Austria	245	214	180	201	197	232	223	219	215	196	183	198
Belgium	344	357	284	272	266	274	281	271	260	253	249	254
Czech Republic	596	600	595	582	560	523	524	524	526	557	544	542
Denmark	477	435	348	344	341	365	317	293	353	326	308	329
Finland	227	247	211	241	252	292	253	193	241	229	187	219
France	109	76	84	72	77	81	79	93	87	90	83	86
Germany	553	522	494	506	508	434	436	405	404	470	441	438
Greece	990	871	813	832	814	774	776	776	727	749	731	736
Hungary	420	432	401	394	391	425	392	341	344	346	331	340
Iceland	1	2	1	1	1	1	1	1	1	1	1	1
Ireland	740	727	642	668	635	603	574	582	545	504	486	512
Italy	575	545	498	482	503	511	416	413	424	388	398	403
Luxembourg	2 588	1 340	255	240	329	330	334	328	326	328	315	323
Netherlands	588	464	400	414	401	406	396	387	394	399	392	395
Norway	3	4	4	6	5	8	7	6	7	7	5	7
Poland	641	671	671	660	662	662	664	657	659	668	653	660
Portugal	516	572	480	442	512	414	452	501	418	385	384	395
Slovak Republic	376	375	267	241	215	255	240	229	223	229	217	223
Spain	427	453	430	382	434	378	382	397	369	387	326	361
Sweden	48	50	42	42	52	59	51	44	48	40	40	43
Switzerland	22	22	25	25	26	27	28	32	30	27	27	28
Turkey	568	512	519	544	472	444	419	426	438	478	495	471
United Kingdom	672	529	461	474	460	478	486	484	506	497	487	497
OECD Europe	435	392	363	361	362	357	346	338	342	351	335	343
<i>European Union - 27</i>	..	413	381	377	380	374	362	355	358	368	351	359

* CO₂ emissions from fossil fuels consumed for electricity, combined heat and power and main activity heat plants divided by the output of electricity and heat generated from fossil fuels, nuclear, hydro (excl. pumped storage), geothermal, solar and biomass. Both main activity producers and autoproducers have been included in the calculation of the emissions. Due to missing data for heat in 1990, the ratio for some countries and regions is not available.

CO₂ emissions per kWh from electricity and heat generationgrammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Non-OECD Total	..	472	511	509	517	534	551	553	563	564	567	564
Algeria	..	633	620	621	632	632	632	606	621	597	596	605
Angola	..	177	382	381	354	373	216	154	98	62	38	66
Benin	..	951	601	955	950	752	740	709	696	694	697	696
Botswana	..	1 800	1 876	1 318	1 323	1 320	1 739	1 851	1 601	1 598	1 789	1 663
Cameroon	..	10	10	16	27	31	28	40	83	301	230	205
Congo	..	9	-	-	-	82	97	103	102	102	108	104
Dem. Rep. of Congo	..	4	1	1	1	1	1	1	2	3	4	3
Côte d'Ivoire	..	275	379	394	409	384	356	457	385	409	449	414
Egypt	..	443	412	381	437	432	473	474	473	450	460	461
Eritrea	..	1 463	713	749	659	694	722	677	690	666	669	675
Ethiopia	..	42	11	9	8	6	6	3	3	44	119	55
Gabon	..	255	326	272	282	306	329	390	365	446	401	404
Ghana	..	3	66	109	255	277	84	147	276	360	214	283
Kenya	..	72	445	309	196	149	220	248	257	246	329	277
Libyan Arab Jamahiriya	..	1 131	1 022	996	971	978	888	907	879	846	885	870
Morocco	..	875	763	764	766	736	754	739	729	714	718	720
Mozambique	..	64	5	4	3	3	3	1	1	1	0	1
Namibia	..	37	5	6	-	13	1	29	95	100	424	206
Nigeria	..	292	354	335	361	339	369	368	404	416	403	408
Senegal	..	881	782	799	645	520	555	634	726	605	563	631
South Africa	..	878	893	829	819	849	871	852	832	845	835	837
Sudan	..	465	508	481	592	603	612	546	605	613	609	609
United Rep. of Tanzania	..	284	192	70	57	51	121	361	431	248	242	307
Togo	..	185	561	1 493	333	216	442	352	459	404	206	356
Tunisia	..	588	574	584	564	554	532	476	524	535	522	527
Zambia	..	7	7	7	7	7	6	6	4	3	3	3
Zimbabwe	..	920	740	848	717	515	572	572	658	618	619	632
Other Africa	..	297	361	439	445	453	444	453	507	498	499	501
Africa	..	682	658	616	618	633	644	631	626	623	619	623
Bahrain	..	815	868	840	835	883	881	873	824	837	651	771
Islamic Rep. of Iran	..	605	568	578	560	534	548	524	516	546	582	548
Iraq	..	698	731	813	751	787	811	811	811	811	812	811
Israel	..	805	749	752	812	805	787	778	756	739	693	729
Jordan	..	834	708	702	740	680	682	660	626	587	589	601
Kuwait	..	638	689	670	624	663	754	808	643	645	614	634
Lebanon	..	654	733	751	722	709	565	667	695	638	705	679
Oman	..	830	795	816	829	853	885	861	887	876	858	873
Qatar	..	1 131	771	781	782	779	649	618	617	565	534	572
Saudi Arabia	..	815	810	778	751	739	763	756	760	740	754	752
Syrian Arab Republic	..	586	567	559	554	563	556	588	606	606	613	608
United Arab Emirates	..	737	728	746	764	805	913	844	820	831	842	831
Yemen	..	946	930	930	919	884	874	841	781	679	636	699
Middle East	..	726	704	704	690	686	706	696	677	679	687	681
Albania	..	37	51	64	57	28	28	32	33	45	14	31
Bosnia and Herzegovina	..	173	797	767	825	849	740	752	801	932	928	887
Bulgaria	..	429	431	465	433	470	470	447	442	516	489	482
Croatia	..	272	303	313	357	380	300	314	320	385	341	349
Cyprus	..	822	838	777	756	833	772	788	758	761	759	759
Gibraltar	..	766	760	754	760	755	766	761	771	771	757	766
FYR of Macedonia	..	776	682	780	724	709	708	701	698	761	786	749
Malta	..	957	819	928	849	840	872	917	878	923	849	883
Romania	..	440	396	412	412	451	418	400	429	438	417	428
Serbia	..	900	807	764	795	825	781	596	644	645	671	653
Slovenia	..	328	338	353	371	367	341	345	355	367	329	350
Non-OECD Europe	..	489	486	498	503	532	505	468	489	526	509	508

CO₂ emissions per kWh from electricity and heat generationgrammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Armenia	..	214	236	243	153	148	120	138	138	163	165	155
Azerbaijan	..	502	648	561	490	523	511	504	473	441	416	444
Belarus	..	324	306	297	298	293	301	296	296	293	303	298
Estonia	..	679	692	679	662	717	701	710	652	748	752	717
Georgia	..	487	193	133	72	76	100	103	147	162	81	130
Kazakhstan	..	448	480	422	465	466	455	440	549	479	439	489
Kyrgyzstan	..	127	106	101	106	94	90	82	79	85	94	86
Latvia	..	239	200	189	188	183	166	162	167	164	162	165
Lithuania	..	174	160	147	123	114	114	136	138	121	114	124
Republic of Moldova	..	514	739	767	738	755	515	519	476	507	468	483
Russian Federation	..	292	321	321	327	329	325	325	329	322	326	326
Tajikistan	..	36	38	36	28	29	33	32	33	32	31	32
Turkmenistan	..	931	795	795	795	795	795	795	795	795	795	795
Ukraine	..	383	347	330	325	381	316	331	346	360	386	364
Uzbekistan	..	433	480	480	478	473	468	471	467	482	444	464
Former Soviet Union	..	315	334	330	334	343	332	333	342	337	339	339
Argentina	..	273	338	267	258	275	308	313	311	352	366	343
Bolivia	..	480	304	507	469	448	525	513	505	491	497	498
Brazil	..	55	88	103	85	79	85	84	81	73	89	81
Chile	..	256	321	252	246	253	322	318	304	408	412	375
Colombia	..	205	160	165	154	152	117	131	127	127	107	120
Costa Rica	..	155	8	20	15	19	7	26	47	72	63	61
Cuba	..	1 137	1 024	991	1 090	1 138	1 075	1 012	856	849	913	873
Dominican Republic	..	876	759	658	734	660	604	588	621	619	626	622
Ecuador	..	314	215	272	281	299	313	384	453	348	262	354
El Salvador	..	403	293	308	315	302	280	268	221	294	252	256
Guatemala	..	306	392	421	484	404	434	384	334	361	336	344
Haiti	..	327	346	340	399	320	301	307	305	511	480	432
Honduras	..	326	281	332	287	352	452	412	267	418	409	365
Jamaica	..	888	821	824	806	822	828	827	789	789	785	788
Netherlands Antilles	..	714	714	714	714	714	713	711	710	708	707	708
Nicaragua	..	484	610	613	563	558	557	539	550	526	477	518
Panama	..	317	231	399	270	356	266	275	310	317	273	300
Paraguay	..	2	-	-	-	-	-	-	-	-	-	-
Peru	..	186	152	120	143	148	206	199	174	187	225	195
Trinidad and Tobago	..	711	691	694	772	731	758	706	723	737	687	715
Uruguay	..	53	57	3	4	2	150	103	296	104	307	236
Venezuela	..	219	191	241	266	265	222	210	219	205	203	209
Other Latin America	..	213	207	223	221	221	214	213	218	221	221	220
Latin America	..	177	187	195	190	189	194	191	189	193	202	195
Bangladesh	..	601	556	602	603	574	546	553	574	567	574	572
Brunei Darussalam	..	880	795	799	818	780	782	762	802	703	755	753
Cambodia	..	1 816	1 798	1 940	1 970	1 880	1 301	1 205	1 141	1 152	1 160	1 151
Chinese Taipei	..	533	626	641	631	651	646	651	659	655	650	655
India	..	927	939	935	920	904	943	937	931	935	968	945
Indonesia	..	552	596	679	655	711	690	694	701	750	726	726
DPR of Korea	..	481	584	583	568	542	528	522	533	469	481	494
Malaysia	..	524	476	500	547	492	538	605	607	611	656	625
Mongolia	..	610	587	585	613	554	526	533	523	563	539	542
Myanmar	..	508	457	405	376	426	414	365	336	336	285	319
Nepal	..	26	12	7	2	1	6	4	4	3	3	3
Pakistan	..	405	479	463	443	371	397	380	413	433	451	432
Philippines	..	458	494	480	450	453	452	463	433	449	487	456
Singapore	..	939	837	787	715	657	623	598	564	539	531	545
Sri Lanka	..	51	448	429	470	488	513	476	335	394	420	383
Thailand	..	606	564	562	548	528	539	535	511	536	529	525
Vietnam	..	301	427	399	430	381	413	412	448	430	413	430
Other Asia	..	258	261	288	330	350	366	358	313	279	279	291
Asia	..	709	733	736	722	709	727	725	725	734	751	737
People's Rep. of China	..	803	765	740	748	776	805	787	788	758	745	764
Hong Kong, China	..	855	712	720	725	795	749	755	754	775	757	762
China	..	804	764	739	748	776	805	787	787	759	745	764

CO₂ emissions per kWh from electricity and heat generation using coal/peat *grammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
World	..	882	877	896	880	889	910	908	911	902	898	904
<i>Annex I Parties</i>	..	836	836	869	848	853	855	864	865	872	854	863
<i>Annex II Parties</i>	..	921	905	952	916	908	911	905	905	910	896	904
<i>North America</i>	..	941	917	984	919	918	922	913	903	917	898	906
<i>Europe</i>	858	854	842	863	863	841	845	845	865	865	850	860
<i>Pacific</i>	1 020	974	963	958	1 001	984	973	967	981	951	959	964
<i>Annex I EIT</i>	..	614	613	616	627	666	660	710	717	724	697	713
<i>Non-Annex I Parties</i>	..	985	951	939	929	941	981	959	958	930	939	942
<i>Annex I Kyoto Parties</i>	..	754	761	770	785	796	797	819	830	826	806	821
Non-OECD Total	..	849	857	852	856	883	920	922	924	905	908	912
OECD Total	..	906	892	933	902	896	900	894	895	898	886	893
Canada	1 010	992	934	915	890	915	958	898	921	851	824	865
Mexico	921	919	1 090	1 058	1 063	1 011	1 004	979	897	963	1 004	955
United States	..	938	916	988	921	918	921	914	902	920	901	908
OECD N. America	..	940	919	985	921	919	923	914	903	917	899	906
Australia	944	933	964	967	1 092	1 070	1 046	1 053	1 076	1 010	1 027	1 038
Japan	1 099	1 006	961	950	940	930	925	911	917	912	911	913
Korea	2 017	1 250	891	944	890	943	987	971	980	902	894	925
New Zealand	1 262	1 166	1 174	1 123	1 092	1 080	1 092	1 056	1 082	1 134	1 057	1 091
OECD Pacific	1 089	1 012	947	955	974	975	977	968	981	938	940	953
Austria	866	922	845	878	880	870	925	941	935	987	955	959
Belgium	990	1 024	992	1 072	1 088	1 092	1 136	1 180	1 237	1 337	1 438	1 337
Czech Republic	735	775	781	775	785	771	788	778	785	816	809	804
Denmark	577	555	519	517	538	600	556	536	602	588	565	585
Finland	504	536	546	567	572	622	613	532	590	575	550	572
France	1 053	1 111	938	903	919	886	905	898	931	938	857	909
Germany	825	854	814	873	871	820	818	803	839	844	827	837
Greece	1 137	1 019	979	981	988	983	1 006	1 000	1 007	983	975	988
Hungary	867	860	838	931	940	955	987	962	916	915	925	919
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	917	923	898	897	912	908	877	868	866	831	825	840
Italy	963	987	974	963	976	967	942	970	1 117	1 001	1 015	1 044
Luxembourg	3 170	3 701	-	-	-	-	-	-	-	-	-	-
Netherlands	859	817	789	806	801	798	791	788	756	774	777	769
Norway	1 100	574	612	721	663	664	701	772	789	769	798	785
Poland	666	682	689	681	686	687	692	687	689	703	694	695
Portugal	886	854	865	849	842	838	843	857	859	848	848	851
Slovak Republic	745	795	760	700	788	838	778	786	790	783	784	785
Spain	936	911	917	915	912	910	891	886	901	943	901	915
Sweden	467	473	638	621	608	616	585	638	620	622	601	614
Switzerland	495	908	-	-	-	-	-	-	-	-	-	-
Turkey	1 199	1 132	1 080	1 082	1 102	1 068	1 045	916	1 015	1 037	1 037	1 029
United Kingdom	910	880	906	898	890	901	930	935	925	929	919	924
OECD Europe	810	819	815	827	830	814	819	813	832	839	826	832
<i>European Union - 27</i>	..	815	809	822	825	811	817	815	828	835	820	828

* CO₂ emissions from coal consumed for electricity, combined heat and power and main activity heat plants divided by output of electricity and heat generated from coal. Both main activity producers and autoproducers have been included in the calculation of the emissions. Due to missing data for heat in 1990, the ratio for some countries and regions is not available.

CO₂ emissions per kWh from electricity and heat generation using coal/peatgrammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Non-OECD Total	..	849	857	852	856	883	920	922	924	905	908	912
Algeria	..	-	-	-	-	-	-	-	-	-	-	-
Angola	..	-	-	-	-	-	-	-	-	-	-	-
Benin	..	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	1 815	1 900	1 325	1 329	1 326	1 776	1 856	1 605	1 602	1 789	1 665
Cameroon	..	-	-	-	-	-	-	-	-	-	-	-
Congo	..	-	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	..	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	..	-	-	-	-	-	-	-	-	-	-	-
Egypt	..	-	-	-	-	-	-	-	-	-	-	-
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	..	-	-	-	-	-	-	-	-	-	-	-
Gabon	..	-	-	-	-	-	-	-	-	-	-	-
Ghana	..	-	-	-	-	-	-	-	-	-	-	-
Kenya	..	-	-	-	-	-	-	-	-	-	-	-
Libyan Arab Jamahiriya	..	-	-	-	-	-	-	-	-	-	-	-
Morocco	..	912	839	821	821	817	814	822	831	840	862	844
Mozambique	..	-	-	-	-	-	-	-	-	-	-	-
Namibia	..	1 346	1 262	1 403	-	1 403	2 104	1 503	1 388	1 339	1 333	1 353
Nigeria	..	-	-	-	-	-	-	-	-	-	-	-
Senegal	..	-	-	-	-	-	-	-	-	-	-	-
South Africa	..	938	960	884	879	902	927	900	878	888	886	884
Sudan	..	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	..	1 116	1 107	1 116	1 116	1 114	1 113	1 111	1 106	1 101	1 105	1 104
Togo	..	-	-	-	-	-	-	-	-	-	-	-
Tunisia	..	-	-	-	-	-	-	-	-	-	-	-
Zambia	..	1 718	1 636	1 527	1 527	1 575	1 527	1 575	1 527	2 290	2 290	2 036
Zimbabwe	..	1 287	1 383	1 362	1 287	1 311	1 321	1 321	1 321	1 322	1 321	1 321
Other Africa	..	956	955	956	955	955	955	955	956	956	955	956
Africa	..	952	966	894	888	906	932	907	887	895	895	892
Bahrain	..	-	-	-	-	-	-	-	-	-	-	-
Islamic Rep. of Iran	..	-	-	-	-	-	-	-	2 791	2 904	3 296	2 997
Iraq	..	-	-	-	-	-	-	-	-	-	-	-
Israel	..	823	827	829	836	838	830	830	834	836	837	836
Jordan	..	-	-	-	-	-	-	-	-	-	-	-
Kuwait	..	-	-	-	-	-	-	-	-	-	-	-
Lebanon	..	-	-	-	-	-	-	-	-	-	-	-
Oman	..	-	-	-	-	-	-	-	-	-	-	-
Qatar	..	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	..	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	..	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	..	-	-	-	-	-	-	-	-	-	-	-
Yemen	..	-	-	-	-	-	-	-	-	-	-	-
Middle East	..	823	827	829	836	838	830	830	865	867	864	865
Albania	..	-	920	967	-	-	-	-	-	-	-	-
Bosnia and Herzegovina	..	977	1 615	1 554	1 686	1 479	1 436	1 445	1 449	1 447	1 451	1 449
Bulgaria	..	892	853	882	870	897	934	952	932	890	848	890
Croatia	..	1 037	894	938	907	859	913	896	863	862	857	861
Cyprus	..	-	-	-	-	-	-	-	-	-	-	-
Gibraltar	..	-	-	-	-	-	-	-	-	-	-	-
FYR of Macedonia	..	991	959	1 014	967	1 011	1 022	1 005	1 038	1 045	1 040	1 041
Malta	..	1 382	-	-	-	-	-	-	-	-	-	-
Romania	..	861	823	826	830	824	845	822	853	877	868	866
Serbia	..	1 568	1 367	1 308	1 335	1 277	1 255	998	1 027	1 024	1 037	1 029
Slovenia	..	726	838	863	877	839	839	826	841	860	843	848
Non-OECD Europe	..	1 026	1 014	1 003	1 020	1 003	1 021	950	966	963	954	961

CO₂ emissions per kWh from electricity and heat generation using coal/peatgrammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Armenia	..	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	..	-	-	-	-	-	-	-	-	-	-	-
Belarus	..	513	432	513	505	521	559	490	475	478	489	481
Estonia	..	930	1 003	985	952	962	988	1 026	943	1 026	1 069	1 013
Georgia	..	967	-	-	-	-	-	-	-	-	-	-
Kazakhstan	..	450	494	433	477	483	480	455	581	501	455	512
Kyrgyzstan	..	517	527	509	508	668	608	474	475	449	449	458
Latvia	..	518	700	611	567	528	486	510	460	478	479	472
Lithuania	..	525	468	500	487	526	477	462	464	502	477	481
Republic of Moldova	..	804	1 011	1 010	1 058	1 013	400	398	390	377	399	389
Russian Federation	..	471	501	509	523	565	558	632	645	633	597	625
Tajikistan	..	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	..	-	-	-	-	-	-	-	-	-	-	-
Ukraine	..	1 222	1 042	939	953	1 120	1 088	1 156	1 085	1 085	1 080	1 083
Uzbekistan	..	1 140	1 121	1 122	1 121	1 120	1 120	1 121	1 120	1 121	1 120	1 120
Former Soviet Union	..	535	542	534	552	597	583	640	677	656	620	651
Argentina	..	2 026	1 246	1 370	1 945	1 709	1 420	1 372	1 229	1 149	1 137	1 171
Bolivia	..	-	-	-	-	-	-	-	-	-	-	-
Brazil	..	1 542	1 464	1 486	1 511	1 566	1 450	1 580	1 611	1 464	1 353	1 476
Chile	..	853	897	857	940	865	850	923	866	875	958	900
Colombia	..	1 167	1 091	1 218	1 204	1 200	1 124	1 140	1 063	948	1 048	1 020
Costa Rica	..	-	-	-	-	-	-	-	-	-	-	-
Cuba	..	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	..	886	886	886	886	886	886	886	886	886	886	886
Ecuador	..	-	-	-	-	-	-	-	-	-	-	-
El Salvador	..	-	-	-	-	-	-	-	-	-	-	-
Guatemala	..	-	954	953	954	953	954	954	953	953	954	953
Haiti	..	-	-	-	-	-	-	-	-	-	-	-
Honduras	..	-	-	-	-	-	-	-	-	-	-	-
Jamaica	..	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	..	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	..	-	-	-	-	-	-	-	-	-	-	-
Panama	..	-	-	-	-	-	-	-	-	-	-	-
Paraguay	..	-	-	-	-	-	-	-	-	-	-	-
Peru	..	-	1 112	1 113	1 112	1 112	1 112	1 112	1 112	1 113	1 112	1 112
Trinidad and Tobago	..	-	-	-	-	-	-	-	-	-	-	-
Uruguay	..	-	-	-	-	-	-	-	-	-	-	-
Venezuela	..	-	-	-	-	-	-	-	-	-	-	-
Other Latin America	..	-	-	-	-	-	-	-	-	-	-	-
Latin America	..	1 258	1 195	1 256	1 270	1 228	1 167	1 255	1 184	1 100	1 114	1 132
Bangladesh	..	-	-	-	-	-	-	1 405	1 391	1 390	1 390	1 390
Brunei Darussalam	..	-	-	-	-	-	-	-	-	-	-	-
Cambodia	..	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	..	854	944	937	923	924	923	929	938	935	949	941
India	..	1 213	1 203	1 199	1 153	1 161	1 224	1 244	1 248	1 273	1 295	1 272
Indonesia	..	806	836	1 072	967	1 025	983	1 026	980	1 052	1 047	1 027
DPR of Korea	..	1 253	1 217	1 208	1 208	1 208	1 208	1 208	1 208	1 208	1 208	1 208
Malaysia	..	856	975	771	856	1 083	1 076	1 076	1 076	1 076	1 196	1 116
Mongolia	..	613	586	585	612	552	523	530	519	559	534	537
Myanmar	..	-	-	-	-	-	-	-	-	-	-	-
Nepal	..	-	-	-	-	-	-	-	-	-	-	-
Pakistan	..	1 581	1 491	1 557	1 628	1 920	2 053	2 316	2 616	2 636	2 137	2 463
Philippines	..	1 436	970	840	912	952	917	1 038	1 038	1 008	1 237	1 094
Singapore	..	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	..	-	-	-	-	-	-	-	-	-	-	-
Thailand	..	986	959	955	976	989	989	980	812	927	947	895
Vietnam	..	1 415	1 479	1 605	1 240	958	961	991	991	988	988	989
Other Asia	..	-	-	-	-	-	-	-	-	-	-	-
Asia	..	1 130	1 117	1 118	1 081	1 090	1 127	1 145	1 141	1 164	1 194	1 166
People's Rep. of China	..	987	911	901	902	918	969	938	931	893	900	908
Hong Kong, China	..	855	868	875	879	889	880	880	887	890	897	891
China	..	984	911	901	902	917	968	937	930	893	900	908

CO₂ emissions per kWh from electricity and heat generation using oil *grammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
World	..	587	662	651	651	660	651	665	647	651	651	650
<i>Annex I Parties</i>	..	485	574	558	562	576	563	576	531	549	535	538
<i>Annex II Parties</i>	..	606	660	644	633	650	620	638	589	603	582	592
<i>North America</i>	..	506	789	705	743	741	761	738	752	718	682	718
<i>Europe</i>	635	611	589	599	571	591	499	560	491	509	525	508
<i>Pacific</i>	633	654	635	636	622	617	611	616	598	615	579	597
<i>Annex I EIT</i>	..	352	403	399	409	401	405	400	394	391	396	394
<i>Non-Annex I Parties</i>	..	751	746	738	732	742	724	738	728	718	718	722
<i>Annex I Kyoto Parties</i>	..	487	527	525	528	533	504	528	494	520	514	509
Non-OECD Total	..	561	661	653	661	662	678	687	679	680	687	682
OECD Total	..	627	663	648	636	657	613	634	592	603	582	592
Canada	701	624	613	687	688	704	668	685	940	929	890	920
Mexico	781	771	780	782	823	1 004	754	792	773	780	757	770
United States	..	491	811	707	750	747	777	744	731	693	652	692
OECD N. America	..	604	786	733	773	804	759	754	760	741	711	737
Australia	832	898	912	914	722	749	957	787	781	881	852	838
Japan	630	651	631	631	620	615	607	613	594	611	574	593
Korea	765	682	482	484	410	400	404	420	415	407	344	389
New Zealand	2 447	896	-	-	-	979	917	781	679	-	734	706
OECD Pacific	642	659	593	586	567	560	546	561	543	562	528	544
Austria	500	422	378	375	377	418	423	387	392	406	431	410
Belgium	403	341	729	536	511	825	828	747	736	719	574	677
Czech Republic	430	351	550	473	456	440	406	398	406	414	433	418
Denmark	413	551	624	562	531	407	400	389	393	415	398	402
Finland	341	323	322	333	332	350	341	344	340	334	337	337
France	603	506	238	201	191	275	320	585	521	530	547	533
Germany	497	363	438	564	473	496	376	718	411	606	589	535
Greece	746	737	731	730	743	749	721	714	694	731	753	726
Hungary	457	574	599	637	555	574	779	751	827	904	745	825
Iceland	520	490	296	327	270	270	781	624	781	493	509	594
Ireland	756	736	696	736	759	826	766	740	814	650	640	702
Italy	672	663	704	706	640	690	489	472	451	403	435	430
Luxembourg	1 021	1 226	-	-	-	-	-	-	-	-	-	-
Netherlands	693	532	560	597	391	389	390	383	403	374	381	386
Norway	1 640	1 035	400	383	281	316	346	401	326	448	475	417
Poland	385	451	463	452	456	456	484	492	510	508	502	507
Portugal	693	720	594	624	621	617	597	601	564	557	563	561
Slovak Republic	381	753	757	405	414	410	382	400	403	386	408	399
Spain	802	795	630	657	654	645	660	696	603	723	718	681
Sweden	297	301	333	326	316	324	345	329	333	338	339	337
Switzerland	498	556	351	344	346	346	346	344	348	411	358	373
Turkey	899	951	852	735	672	668	688	654	740	675	714	710
United Kingdom	660	672	431	563	553	641	668	585	527	540	458	508
OECD Europe	616	611	599	601	572	589	506	560	498	517	534	516
<i>European Union - 27</i>	..	560	572	576	557	579	504	559	499	521	534	518

* CO₂ emissions from oil consumed for electricity, combined heat and power and main activity heat plants divided by output of electricity and heat generated from oil. Both main activity producers and autoproducers have been included in the calculation of the emissions. Due to missing data for heat in 1990, the ratio for some countries and regions is not available.

CO₂ emissions per kWh from electricity and heat generation using oilgrammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Non-OECD Total	..	561	661	653	661	662	678	687	679	680	687	682
Algeria	..	1 178	863	840	968	864	869	948	961	916	914	930
Angola	..	2 835	1 037	1 006	1 004	986	988	984	988	987	1 007	994
Benin	..	951	616	985	981	771	749	716	696	699	702	699
Botswana	..	1 054	1 051	1 050	1 085	1 085	1 055	1 026	1 026	1 026	-	1 026
Cameroon	..	893	919	853	753	733	600	698	739	739	734	737
Congo	..	1 587	-	-	-	-	-	-	-	-	-	-
Dem. Rep. of Congo	..	1 219	1 058	1 270	794	907	794	907	1 058	907	747	904
Côte d'Ivoire	..	692	970	970	970	1 042	718	933	968	1 037	1 047	1 018
Egypt	..	660	708	698	773	744	778	810	743	621	632	665
Eritrea	..	1 463	717	752	661	696	725	680	696	671	674	680
Ethiopia	..	641	828	1 003	756	794	882	794	953	960	959	957
Gabon	..	803	777	648	680	676	682	696	702	686	660	683
Ghana	..	836	772	683	824	811	665	860	827	772	828	809
Kenya	..	728	858	943	858	857	856	858	857	856	857	857
Libyan Arab Jamahiriya	..	1 290	1 144	1 111	1 089	1 067	943	1 003	1 078	1 077	1 087	1 081
Morocco	..	932	741	832	809	797	915	872	832	740	768	780
Mozambique	..	907	1 058	1 058	1 027	840	814	907	794	1 058	-	926
Namibia	..	833	-	-	-	1 666	-	666	740	740	666	716
Nigeria	..	693	699	700	700	700	700	701	700	700	700	700
Senegal	..	980	1 045	1 012	993	845	876	917	871	709	678	752
South Africa	..	819	-	1 026	1 154	769	-	1 026	1 042	753	748	848
Sudan	..	972	942	869	1 014	922	899	814	900	900	900	900
United Rep. of Tanzania	..	1 495	1 488	1 509	1 482	1 459	1 499	924	919	891	924	911
Togo	..	1 058	1 309	2 516	780	732	799	589	798	842	847	829
Tunisia	..	921	907	937	919	1 000	953	960	839	813	839	831
Zambia	..	917	922	896	896	896	896	847	690	859	967	838
Zimbabwe	..	-	1 539	2 020	3 175	2 963	1 965	2 117	2 117	2 117	2 117	2 117
Other Africa	..	528	616	768	790	786	769	767	775	764	764	768
Africa	..	883	886	906	900	901	844	871	854	784	802	813
Bahrain	..	-	-	-	-	-	-	-	1 312	1 314	1 231	1 286
Islamic Rep. of Iran	..	968	883	813	831	817	811	872	1 053	1 143	1 060	1 085
Iraq	..	712	745	829	763	799	824	823	824	824	825	824
Israel	..	777	578	518	730	695	707	685	723	705	703	710
Jordan	..	860	717	716	755	686	753	730	699	675	683	686
Kuwait	..	734	746	722	667	700	795	847	693	695	667	685
Lebanon	..	753	778	783	776	814	634	744	751	680	731	721
Oman	..	1 056	1 056	1 056	1 055	1 055	1 055	1 056	1 055	1 056	1 056	1 056
Qatar	..	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	..	804	844	805	743	718	766	751	755	721	747	741
Syrian Arab Republic	..	777	729	728	730	714	730	729	779	731	718	743
United Arab Emirates	..	968	953	976	999	1 052	1 194	1 194	1 194	1 194	1 195	1 194
Yemen	..	946	930	930	919	884	874	841	781	679	636	699
Middle East	..	811	793	781	756	748	783	794	803	787	785	792
Albania	..	501	1 527	1 536	959	1 415	1 228	1 693	1 328	1 218	1 385	1 311
Bosnia and Herzegovina	..	583	288	425	511	499	471	475	462	476	464	467
Bulgaria	..	321	511	635	577	595	522	542	570	575	459	535
Croatia	..	456	582	639	630	622	578	531	547	600	568	572
Cyprus	..	822	838	777	756	833	772	789	758	761	761	760
Gibraltar	..	766	760	754	760	755	766	761	771	771	757	766
FYR of Macedonia	..	376	434	376	382	328	336	324	389	474	426	430
Malta	..	932	819	928	849	840	872	917	878	923	849	883
Romania	..	378	374	385	392	406	411	395	389	428	411	410
Serbia	..	418	394	422	676	688	626	381	427	396	346	390
Slovenia	..	973	477	667	494	436	439	437	396	535	397	443
Non-OECD Europe	..	412	488	493	521	554	567	543	549	595	577	574

CO₂ emissions per kWh from electricity and heat generation using oilgrammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Armenia	..	306	-	-	-	-	-	-	-	-	-	-
Azerbaijan	..	600	725	725	725	725	725	725	577	690	682	650
Belarus	..	352	359	353	346	343	370	350	362	328	386	359
Estonia	..	349	365	397	402	402	361	369	372	403	423	399
Georgia	..	1 349	1 052	2 999	2 603	2 603	2 603	2 603	2 603	2 603	-	2 603
Kazakhstan	..	1 033	1 109	815	1 293	682	233	478	423	398	360	394
Kyrgyzstan	..	-	-	-	-	-	-	-	-	-	-	-
Latvia	..	341	373	356	337	354	372	350	386	409	435	410
Lithuania	..	353	376	390	398	409	439	463	433	450	437	440
Republic of Moldova	..	760	805	839	835	815	345	402	379	458	422	420
Russian Federation	..	328	398	391	407	392	396	392	383	375	382	380
Tajikistan	..	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	..	-	-	-	-	-	-	-	-	-	-	-
Ukraine	..	481	372	377	395	433	771	889	940	914	917	924
Uzbekistan	..	606	637	631	625	621	620	621	621	621	622	621
Former Soviet Union	..	369	432	413	432	419	415	418	401	395	394	397
Argentina	..	632	1 013	1 141	1 059	1 132	922	808	767	777	756	767
Bolivia	..	972	925	1 266	1 267	1 272	1 275	1 275	1 275	1 272	1 275	1 274
Brazil	..	825	796	785	695	759	714	762	722	689	661	691
Chile	..	863	596	489	306	240	1 110	1 088	1 073	686	618	793
Colombia	..	891	864	864	861	874	877	877	874	871	871	872
Costa Rica	..	916	965	1 361	936	928	959	807	773	896	888	853
Cuba	..	1 199	1 086	1 051	1 158	1 211	1 129	1 058	886	872	942	900
Dominican Republic	..	998	836	687	792	687	651	684	703	700	710	704
Ecuador	..	810	761	756	749	739	729	975	1 130	887	737	918
El Salvador	..	938	605	685	665	711	615	632	502	659	654	605
Guatemala	..	873	769	769	774	774	775	811	810	792	796	799
Haiti	..	669	716	649	761	611	573	587	582	761	766	703
Honduras	..	842	737	655	476	578	646	619	423	670	661	585
Jamaica	..	923	849	844	829	848	862	862	826	823	818	822
Netherlands Antilles	..	714	714	714	714	714	713	711	710	708	707	708
Nicaragua	..	842	748	748	714	741	740	772	740	741	740	740
Panama	..	1 027	781	787	764	727	782	769	778	735	721	745
Paraguay	..	926	-	-	-	-	-	-	-	-	-	-
Peru	..	965	854	862	826	791	759	900	720	727	695	714
Trinidad and Tobago	..	-	1 058	1 058	1 058	1 058	705	794	635	1 411	1 588	1 211
Uruguay	..	810	850	1 126	1 104	1 214	820	821	843	805	783	810
Venezuela	..	1 200	890	983	909	915	936	900	998	929	884	937
Other Latin America	..	225	202	210	209	206	200	199	204	208	208	207
Latin America	..	711	678	678	673	680	678	681	668	659	651	659
Bangladesh	..	1 004	1 078	1 176	1 116	1 079	1 013	1 091	1 091	1 117	1 117	1 108
Brunei Darussalam	..	847	690	794	762	762	766	766	819	770	770	786
Cambodia	..	1 816	1 798	1 940	2 076	2 010	1 350	1 269	1 199	1 201	1 202	1 200
Chinese Taipei	..	697	689	673	676	752	793	807	784	832	828	815
India	..	1 105	1 036	1 035	870	915	930	929	848	778	883	836
Indonesia	..	685	786	693	713	775	709	692	691	785	731	736
DPR of Korea	..	1 379	1 379	1 380	1 379	1 379	1 379	1 379	1 378	1 380	1 380	1 379
Malaysia	..	721	920	907	808	839	845	831	812	836	917	855
Mongolia	..	481	606	600	700	682	726	864	906	844	873	875
Myanmar	..	894	868	778	747	738	736	735	753	757	761	757
Nepal	..	827	755	755	850	850	971	1 020	1 020	1 020	927	989
Pakistan	..	757	755	758	773	675	795	692	749	719	731	733
Philippines	..	646	675	661	705	720	711	752	751	748	711	737
Singapore	..	1 201	919	919	919	919	920	919	836	726	707	756
Sri Lanka	..	696	826	795	761	855	803	758	657	657	763	693
Thailand	..	741	749	805	751	725	715	729	739	763	728	744
Vietnam	..	900	914	936	907	894	891	1 148	1 181	1 056	1 214	1 150
Other Asia	..	518	562	564	648	670	687	692	690	696	696	694
Asia	..	787	824	813	795	817	806	791	770	776	788	778
People's Rep. of China	..	619	637	635	645	667	667	683	648	616	573	612
Hong Kong, China	..	866	942	934	1 011	863	818	935	979	977	1 032	996
China	..	621	637	636	645	667	667	683	648	616	574	613

CO₂ emissions per kWh from electricity and heat generation using gas *grammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
World	..	365	387	388	389	385	386	388	381	386	391	386
<i>Annex I Parties</i>	..	331	350	348	348	343	341	344	337	342	346	342
<i>Annex II Parties</i>	..	455	415	407	401	388	387	386	372	375	373	373
<i>North America</i>	..	502	459	453	434	426	436	435	393	398	389	393
<i>Europe</i>	403	361	348	336	340	323	316	316	320	320	328	323
<i>Pacific</i>	474	465	442	442	446	449	449	452	452	452	452	452
<i>Annex I EIT</i>	..	265	296	297	298	303	296	301	300	305	313	306
<i>Non-Annex I Parties</i>	..	559	536	536	533	524	527	522	513	512	512	512
<i>Annex I Kyoto Parties</i>	..	293	324	323	325	325	317	320	321	326	333	327
Non-OECD Total	..	324	372	378	383	385	386	392	390	397	407	398
OECD Total	..	452	411	402	397	385	385	383	370	374	372	372
Canada	371	360	407	411	395	424	392	395	391	409	362	387
Mexico	555	545	519	477	450	452	467	427	422	417	420	420
United States	..	509	462	455	437	427	438	437	393	398	390	394
OECD N. America	..	504	462	454	436	429	439	434	396	400	392	396
Australia	565	558	584	597	564	606	572	569	573	571	563	569
Japan	465	457	433	431	432	432	434	437	440	440	439	440
Korea	496	389	336	353	338	325	347	343	349	351	343	348
New Zealand	507	509	450	436	450	435	433	428	415	415	397	409
OECD Pacific	475	457	429	430	430	430	429	429	430	430	427	429
Austria	384	404	315	321	295	294	288	303	299	293	292	295
Belgium	454	412	335	311	310	336	334	348	307	307	306	307
Czech Republic	237	227	271	267	269	266	284	273	283	275	292	283
Denmark	222	235	250	249	250	252	254	249	252	245	242	246
Finland	241	274	238	242	242	244	243	233	247	234	232	238
France	337	335	250	250	245	240	233	241	263	265	267	265
Germany	372	314	345	314	326	259	259	260	257	281	278	272
Greece	459	435	505	482	446	434	416	459	416	416	423	418
Hungary	343	359	305	286	315	335	308	305	312	329	319	320
Iceland	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	499	480	460	473	445	421	407	412	405	413	408	409
Italy	475	466	431	402	435	420	348	344	336	317	351	335
Luxembourg	662	307	206	202	327	322	328	325	326	329	320	325
Netherlands	434	306	274	285	282	282	283	282	297	295	299	297
Norway	-	302	293	328	288	283	288	283	283	322	285	297
Poland	289	318	304	313	330	320	332	334	330	335	328	331
Portugal	-	-	364	346	347	347	339	337	331	329	336	332
Slovak Republic	442	429	333	278	239	240	251	241	236	239	239	238
Spain	423	469	311	281	325	316	324	319	356	339	345	347
Sweden	217	218	227	222	252	219	216	219	218	215	215	216
Switzerland	241	232	233	234	234	236	236	237	239	240	242	240
Turkey	488	419	346	359	357	347	355	357	341	347	350	346
United Kingdom	521	426	382	387	379	379	388	383	391	382	380	384
OECD Europe	397	361	345	334	337	323	318	317	320	322	329	324
<i>European Union - 27</i>	..	348	339	327	332	320	312	312	316	317	324	319

* CO₂ emissions from gas consumed for electricity, combined heat and power and main activity heat plants divided by output of electricity and heat generated from gas. Both main activity producers and autoproducers have been included in the calculation of the emissions. Due to missing data for heat in 1990, the ratio for some countries and regions is not available.

CO₂ emissions per kWh from electricity and heat generation using gasgrammes CO₂ / kilowatt hour

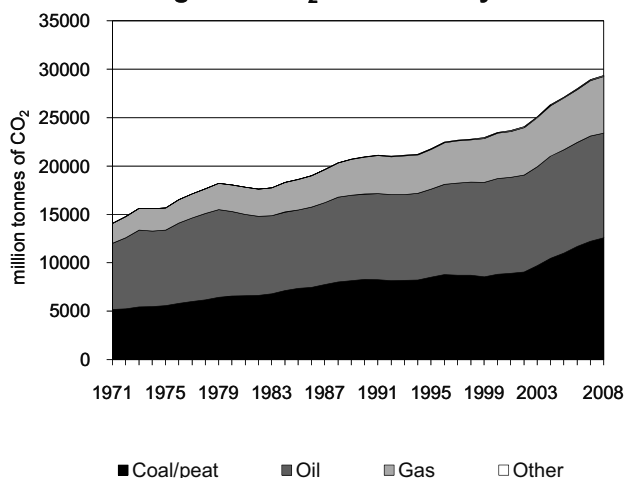
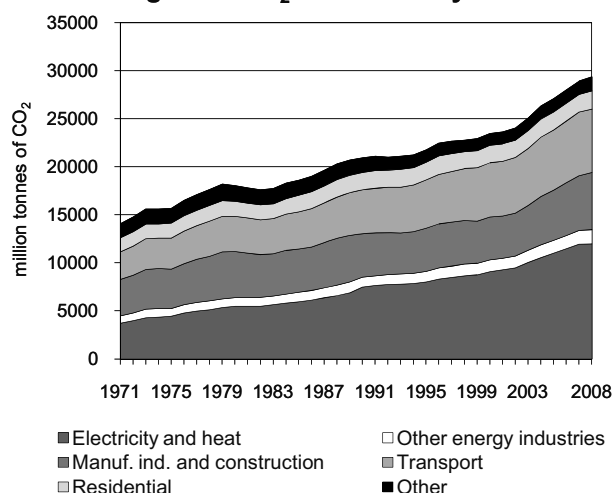
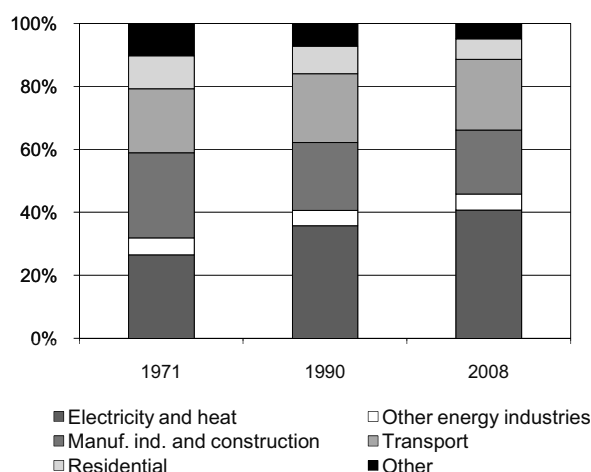
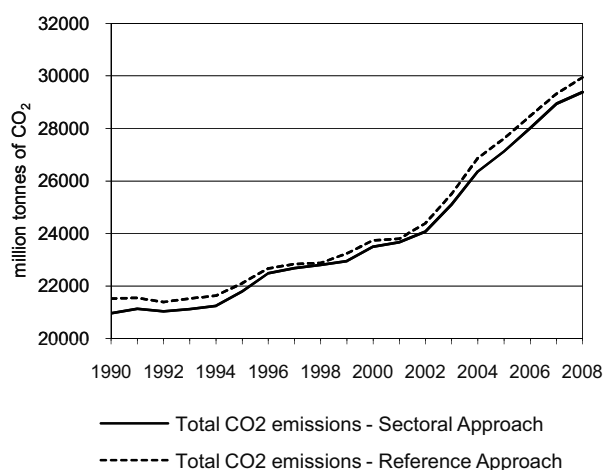
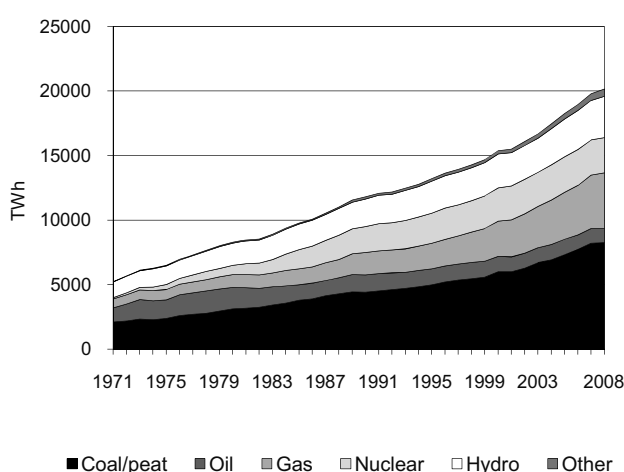
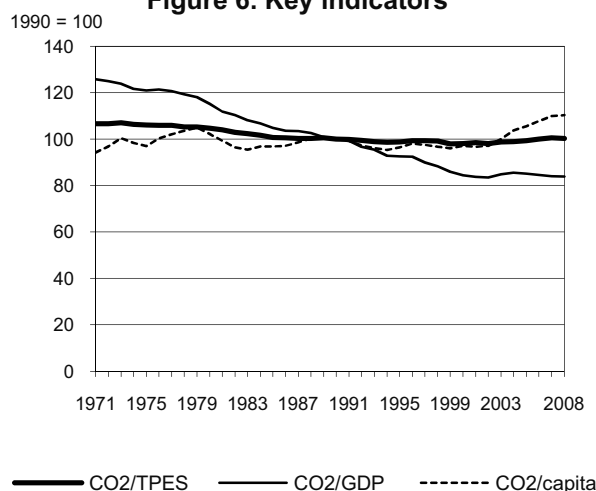
	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Non-OECD Total	..	324	372	378	383	385	386	392	390	397	407	398
Algeria	..	621	614	616	625	632	631	609	618	594	594	602
Angola	..	-	-	-	-	-	-	-	-	-	-	-
Benin	..	-	-	-	-	-	-	-	-	-	-	-
Botswana	..	-	-	-	-	-	-	-	-	-	-	-
Cameroon	..	-	-	-	-	-	-	-	-	1 470	1 474	1 472
Congo	..	-	-	-	-	573	576	573	572	575	576	574
Dem. Rep. of Congo	..	-	-	-	-	-	-	-	574	573	573	573
Côte d'Ivoire	..	736	598	622	606	600	536	627	539	617	687	614
Egypt	..	529	467	442	484	484	490	490	490	490	490	490
Eritrea	..	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	..	-	-	-	-	-	-	-	-	-	-	-
Gabon	..	876	929	894	893	899	965	1 007	1 017	1 063	792	957
Ghana	..	-	-	-	-	-	-	-	-	-	-	-
Kenya	..	-	-	-	-	-	-	-	-	-	-	-
Libyan Arab Jamahiriya	..	591	591	591	529	632	662	662	591	562	595	583
Morocco	..	-	-	-	-	-	-	397	394	409	350	384
Mozambique	..	652	778	1 106	1 155	1 674	775	724	684	573	502	586
Namibia	..	-	-	-	-	-	-	-	-	-	-	-
Nigeria	..	410	565	517	517	517	517	517	517	517	517	517
Senegal	..	604	628	-	518	512	517	519	516	513	513	514
South Africa	..	-	-	-	-	-	-	-	-	-	-	-
Sudan	..	-	-	-	-	-	-	-	-	-	-	-
United Rep. of Tanzania	..	-	-	-	-	-	484	569	602	579	563	581
Togo	..	-	-	-	-	-	-	-	-	-	-	-
Tunisia	..	533	536	550	529	521	502	440	477	484	486	482
Zambia	..	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	..	-	-	-	-	-	-	-	-	-	-	-
Other Africa	..	-	-	-	-	-	-	-	-	-	-	-
Africa	..	544	525	508	527	529	533	525	526	525	528	526
Bahrain	..	815	868	840	835	883	881	873	797	826	650	758
Islamic Rep. of Iran	..	507	507	529	527	525	529	511	452	477	495	475
Iraq	..	-	-	-	-	-	-	-	-	-	-	-
Israel	..	516	541	529	535	673	538	562	468	416	357	414
Jordan	..	681	671	626	646	666	622	610	600	566	571	579
Kuwait	..	539	553	539	478	516	586	627	510	515	491	505
Lebanon	..	-	-	-	-	-	-	-	-	-	-	-
Oman	..	776	741	765	780	809	847	819	850	836	814	833
Qatar	..	1 131	771	781	782	779	649	618	617	565	534	572
Saudi Arabia	..	830	766	749	759	761	760	761	765	764	763	764
Syrian Arab Republic	..	543	543	543	543	543	543	543	543	543	543	543
United Arab Emirates	..	730	721	740	758	798	906	836	812	824	836	824
Yemen	..	-	-	-	-	-	-	-	-	-	-	-
Middle East	..	680	637	651	654	660	675	659	621	630	626	626
Albania	..	-	-	-	-	-	-	-	-	-	-	-
Bosnia and Herzegovina	..	-	287	287	287	287	287	287	287	287	287	287
Bulgaria	..	302	296	288	288	261	232	236	244	266	246	252
Croatia	..	423	339	324	346	313	318	304	323	356	320	333
Cyprus	..	-	-	-	-	-	-	-	-	-	-	-
Gibraltar	..	-	-	-	-	-	-	-	-	-	-	-
FYR of Macedonia	..	-	238	235	235	248	254	242	242	238	226	235
Malta	..	-	-	-	-	-	-	-	-	-	-	-
Romania	..	322	295	292	309	349	313	311	315	308	310	311
Serbia	..	241	260	270	258	268	268	230	229	266	238	244
Slovenia	..	234	237	249	271	278	246	260	244	266	268	259
Non-OECD Europe	..	314	294	291	302	320	293	284	291	300	289	293

CO₂ emissions per kWh from electricity and heat generation using gasgrammes CO₂ / kilowatt hour

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average 06-08
Armenia	..	328	457	458	454	455	351	404	442	495	511	483
Azerbaijan	..	341	582	521	444	481	496	496	496	435	431	454
Belarus	..	299	298	288	292	289	298	297	297	300	309	302
Estonia	..	223	232	236	236	236	231	233	234	232	237	234
Georgia	..	934	887	616	393	348	369	389	459	704	393	519
Kazakhstan	..	559	591	585	585	585	585	585	585	585	585	585
Kyrgyzstan	..	309	309	309	309	309	309	309	309	310	311	310
Latvia	..	247	240	241	239	236	238	236	234	232	242	236
Lithuania	..	255	268	268	257	257	260	264	257	258	264	259
Republic of Moldova	..	402	734	769	744	752	525	527	483	509	471	488
Russian Federation	..	259	293	298	301	297	297	305	305	309	315	309
Tajikistan	..	515	517	517	428	422	501	498	459	405	405	423
Turkmenistan	..	931	795	795	795	795	795	795	795	795	795	795
Ukraine	..	273	317	308	294	348	293	284	267	277	312	285
Uzbekistan	..	422	474	475	475	481	487	491	489	490	484	488
Former Soviet Union	..	272	308	311	311	314	309	314	313	318	326	319
Argentina	..	437	514	490	482	474	450	460	467	468	468	468
Bolivia	..	845	605	1 043	882	635	898	738	743	723	686	717
Brazil	..	742	496	455	478	445	472	473	451	450	436	446
Chile	..	358	425	448	424	416	407	465	414	463	506	461
Colombia	..	646	534	480	495	502	492	496	485	544	462	497
Costa Rica	..	-	-	-	-	-	-	-	-	-	-	-
Cuba	..	377	477	477	477	-	-	-	-	-	-	-
Dominican Republic	..	-	-	-	-	503	503	502	502	502	502	502
Ecuador	..	-	-	-	937	976	903	524	705	871	586	720
El Salvador	..	-	-	-	-	-	-	-	-	-	-	-
Guatemala	..	-	-	-	-	-	-	-	-	-	-	-
Haiti	..	-	-	-	-	-	-	-	-	-	-	-
Honduras	..	-	-	-	-	-	-	-	-	-	-	-
Jamaica	..	-	-	-	-	-	-	-	-	-	-	-
Netherlands Antilles	..	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	..	-	-	-	-	-	-	-	-	-	-	-
Panama	..	-	-	-	-	-	-	-	-	-	-	-
Paraguay	..	-	-	-	-	-	-	-	-	-	-	-
Peru	..	670	670	648	648	648	611	548	534	462	472	489
Trinidad and Tobago	..	716	693	697	776	732	761	708	725	736	686	716
Uruguay	..	-	-	-	-	451	578	469	552	578	3 262	1 464
Venezuela	..	675	644	615	654	652	638	658	654	630	625	637
Other Latin America	..	448	452	452	452	452	452	452	452	452	452	452
Latin America	..	570	539	522	532	513	500	509	508	515	498	507
Bangladesh	..	586	555	597	603	573	545	546	561	555	554	557
Brunei Darussalam	..	881	796	799	819	780	782	762	802	702	754	753
Cambodia	..	-	-	-	-	-	-	-	-	-	-	-
Chinese Taipei	..	505	462	473	446	432	425	428	429	423	429	427
India	..	539	503	493	538	469	480	480	480	460	445	462
Indonesia	..	575	495	560	475	472	507	430	469	442	507	473
DPR of Korea	..	-	-	-	-	-	-	-	-	-	-	-
Malaysia	..	528	472	491	510	409	418	485	491	463	499	484
Mongolia	..	-	-	-	-	-	-	-	-	-	-	-
Myanmar	..	843	686	637	654	725	725	725	725	725	725	725
Nepal	..	-	-	-	-	-	-	-	-	-	-	-
Pakistan	..	594	550	537	529	536	526	537	536	573	586	565
Philippines	..	854	1 202	333	300	349	356	343	325	330	341	332
Singapore	..	447	472	449	449	488	488	488	488	488	488	488
Sri Lanka	..	-	-	-	-	-	-	-	-	-	-	-
Thailand	..	468	489	506	503	483	475	472	472	470	459	467
Vietnam	..	514	591	584	643	522	546	515	465	425	438	443
Other Asia	..	-	-	-	-	-	-	-	-	-	-	-
Asia	..	539	503	515	511	476	480	483	482	471	476	476
People's Rep. of China	..	516	334	315	304	326	325	351	370	434	430	411
Hong Kong, China	..	859	468	467	448	457	451	454	454	454	454	454
China	..	524	388	375	360	367	365	378	392	437	434	421

GLOBAL AND REGIONAL TOTALS

World

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


World

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	20 964.8	21 793.7	23 496.5	27 129.1	28 024.0	28 945.3	29 381.4	40.1%
CO ₂ Reference Approach (Mt of CO ₂)	21 523.4	22 107.7	23 744.1	27 614.7	28 479.8	29 327.7	29 938.6	39.1%
TPES (PJ)	367 478	386 902	419 708	478 570	491 160	504 221	513 611	39.8%
TPES (Mtoe)	8 777.1	9 241.0	10 024.5	11 430.4	11 731.2	12 043.1	12 267.4	39.8%
GDP (billion 2000 USD)	24 228.8	27 190.7	32 150.1	36 849.3	38 300.7	39 783.7	40 481.5	67.1%
GDP PPP (billion 2000 USD)	33 357.0	37 830.0	45 761.1	55 438.1	58 465.7	61 747.9	63 865.8	91.5%
Population (millions)	5 265.2	5 680.4	6 074.0	6 458.6	6 534.5	6 610.5	6 687.9	27.0%
CO ₂ / TPES (t CO ₂ per TJ)	57.1	56.3	56.0	56.7	57.1	57.4	57.2	0.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.87	0.80	0.73	0.74	0.73	0.73	0.73	-16.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.63	0.58	0.51	0.49	0.48	0.47	0.46	-26.8%
CO ₂ / population (t CO ₂ per capita)	3.98	3.84	3.87	4.20	4.29	4.38	4.39	10.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	12 595.3	10 821.0	5 861.5	103.6	29 381.4	40.1%
Main activity producer elec. and heat	8 222.8	713.3	1 992.3	34.8	10 963.1	65.8%
Unallocated autoproducers	448.4	150.8	387.2	38.2	1 024.7	14.2%
Other energy industries	281.0	675.6	534.5	0.7	1 491.9	47.8%
Manufacturing industries and construction	3 094.0	1 532.2	1 291.9	25.6	5 943.6	31.4%
Transport	13.4	6 410.3	180.9	-	6 604.7	44.1%
<i>of which: road</i>	-	4 812.9	35.5	-	4 848.4	47.5%
Other	535.7	1 338.8	1 474.6	4.3	3 353.4	0.4%
<i>of which: residential</i>	299.8	631.9	973.3	0.0	1 905.1	4.7%
Reference Approach	12 904.8	10 982.1	5 948.0	103.7	29 938.6	39.1%
Diff. due to losses and/or transformation	282.9	49.3	78.9	0.0	411.1	
Statistical differences	26.6	111.9	7.5	0.1	146.0	
<i>Memo: international marine bunkers **</i>	-	578.2	-	-	578.2	63.0%
<i>Memo: international aviation bunkers **</i>	-	454.8	-	-	454.8	76.1%

* Other includes industrial waste and non-renewable municipal waste.

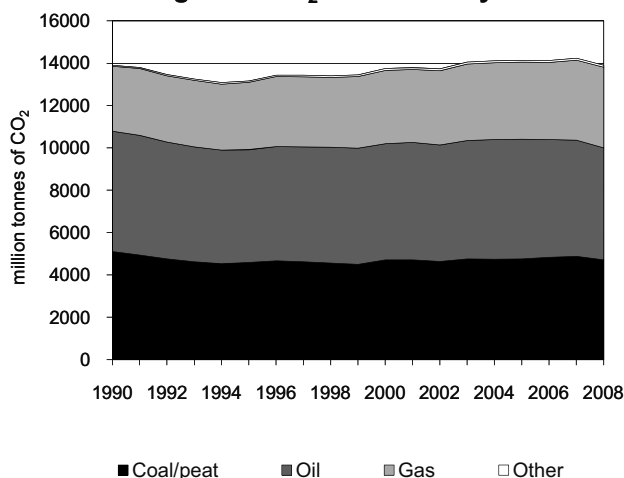
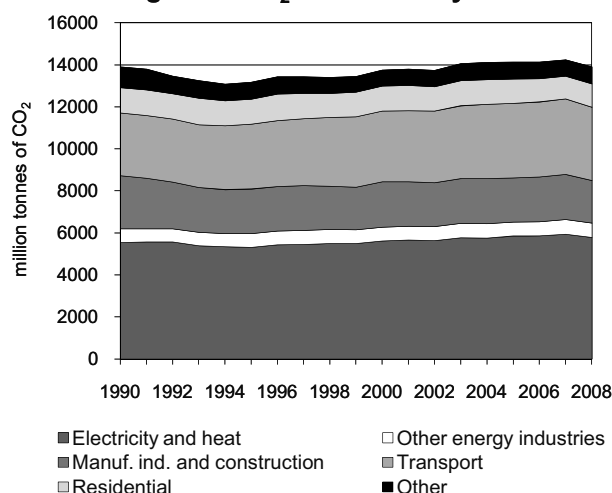
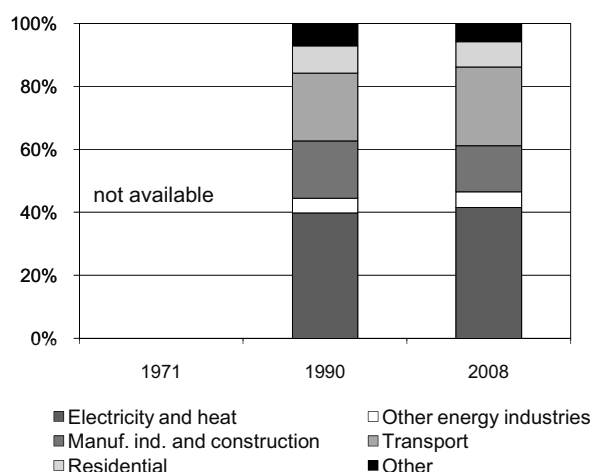
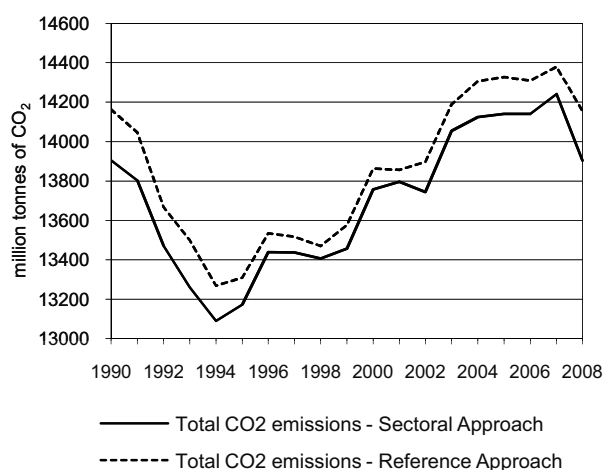
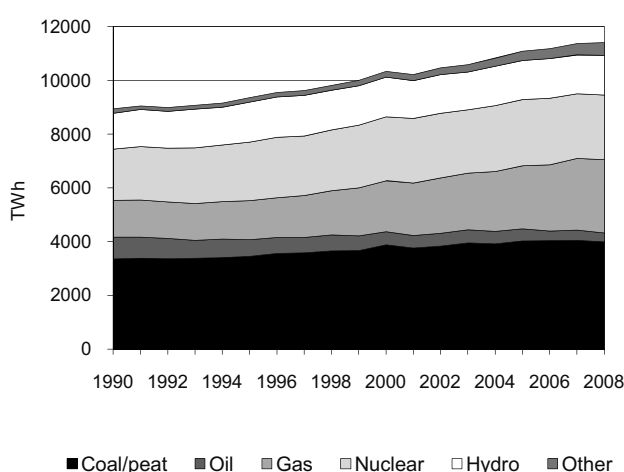
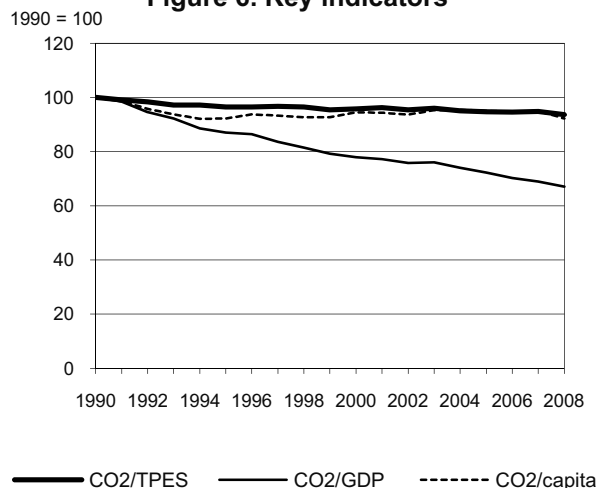
** World includes international marine bunkers and international aviation bunkers.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	8 222.8	80.6%	19.1	19.1
Road - oil	4 812.9	46.6%	11.2	30.3
Manufacturing industries - coal/peat	3 094.0	41.2%	7.2	37.4
Main activity prod. elec. and heat - gas	1 992.3	94.1%	4.6	42.1
Other transport - oil	1 597.4	42.0%	3.7	45.8
Manufacturing industries - oil	1 532.2	14.0%	3.6	49.3
Manufacturing industries - gas	1 291.9	31.4%	3.0	52.3
Residential - gas	973.3	52.0%	2.3	54.6
Main activity prod. elec. and heat - oil	713.3	-30.5%	1.7	56.2
Non-specified other - oil	706.9	-3.0%	1.6	57.9
Other energy industries - oil	675.6	21.5%	1.6	59.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>29 381.4</i>	<i>40.1%</i>	<i>68.2</i>	<i>68.2</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex I Parties

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Annex I Parties

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	13 904.8	13 172.3	13 757.9	14 141.0	14 140.2	14 241.4	13 903.8	0.0%
CO ₂ Reference Approach (Mt of CO ₂)	14 163.4	13 308.9	13 862.6	14 328.2	14 308.9	14 379.1	14 156.0	-0.1%
TPES (PJ)	233 637	229 407	241 400	250 960	251 053	252 266	249 573	6.8%
TPES (Mtoe)	5 580.3	5 479.3	5 765.8	5 994.1	5 996.3	6 025.3	5 961.0	6.8%
GDP (billion 2000 USD)	19 879.9	21 637.5	25 228.5	27 982.2	28 785.1	29 533.3	29 672.6	49.3%
GDP PPP (billion 2000 USD)	22 397.2	23 506.4	27 471.5	30 891.8	31 901.4	32 853.1	33 137.0	48.0%
Population (millions)	1 175.3	1 207.3	1 231.4	1 257.1	1 262.5	1 268.7	1 274.9	8.5%
CO ₂ / TPES (t CO ₂ per TJ)	59.5	57.4	57.0	56.3	56.3	56.5	55.7	-6.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.61	0.55	0.51	0.49	0.48	0.47	-33.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.62	0.56	0.50	0.46	0.44	0.43	0.42	-32.4%
CO ₂ / population (t CO ₂ per capita)	11.83	10.91	11.17	11.25	11.20	11.23	10.91	-7.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	4 713.6	5 298.6	3 799.6	92.0	13 903.8	-0.0%
Main activity producer elec. and heat	3 678.0	179.8	1 220.4	34.8	5 113.0	7.0%
Unallocated autoproducers	246.7	81.2	309.4	35.0	672.4	-12.5%
Other energy industries	78.2	374.9	230.6	0.7	684.4	5.5%
Manufacturing industries and construction	593.4	659.7	764.6	17.9	2 035.6	-19.6%
Transport	0.6	3 336.6	142.2	-	3 479.4	16.4%
<i>of which: road</i>	-	2 973.0	4.0	-	2 977.0	22.3%
Other	116.7	666.3	1 132.4	3.6	1 919.1	-12.4%
<i>of which: residential</i>	75.2	294.4	748.0	0.0	1 117.6	-6.7%
Reference Approach	4 854.5	5 390.4	3 819.0	92.1	14 156.0	-0.1%
Diff. due to losses and/or transformation	51.8	- 11.9	28.5	0.0	68.4	
Statistical differences	89.1	103.7	- 9.1	0.1	183.8	
<i>Memo: international marine bunkers</i>	-	265.0	-	-	265.0	13.5%
<i>Memo: international aviation bunkers</i>	-	263.4	-	-	263.4	57.2%

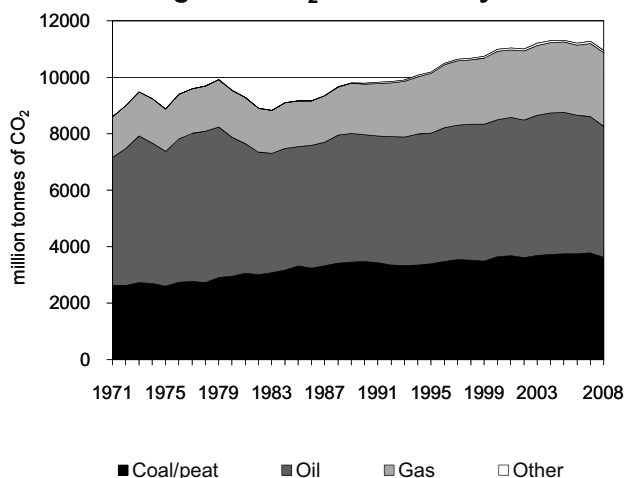
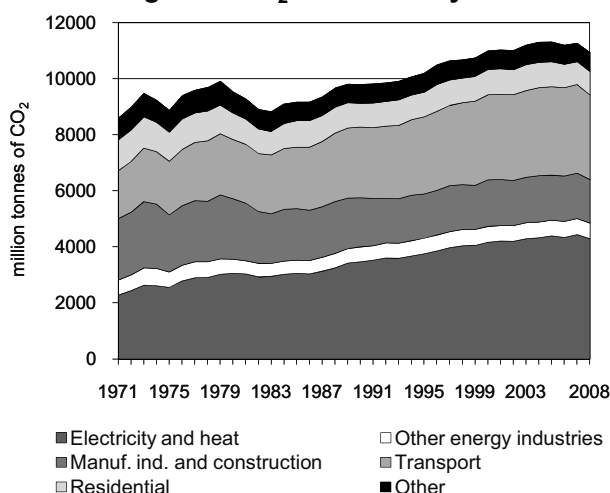
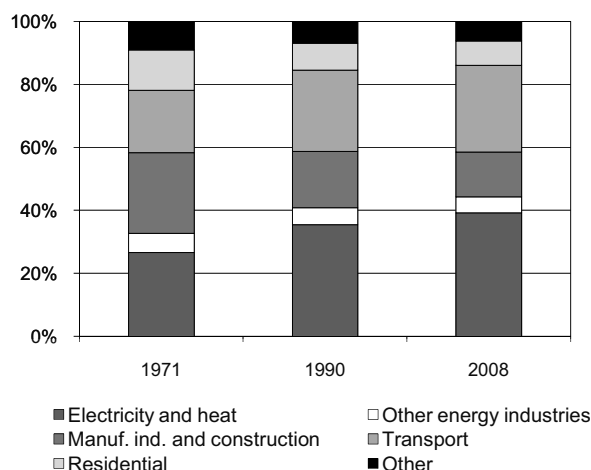
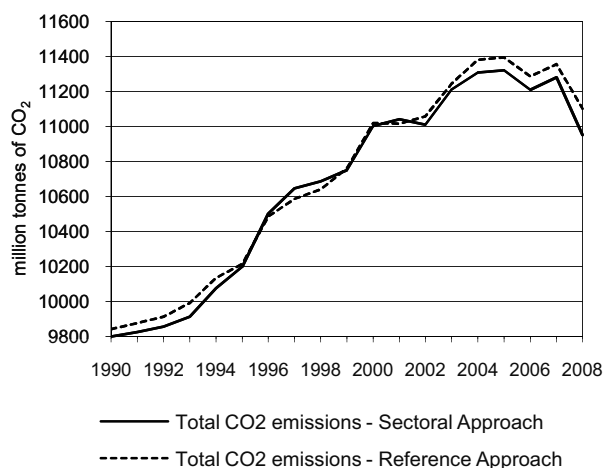
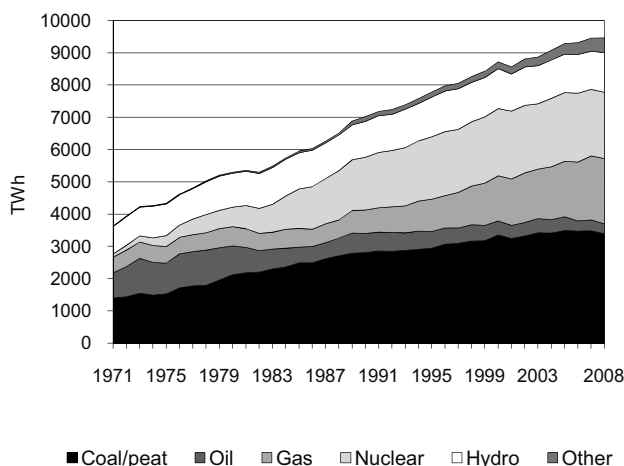
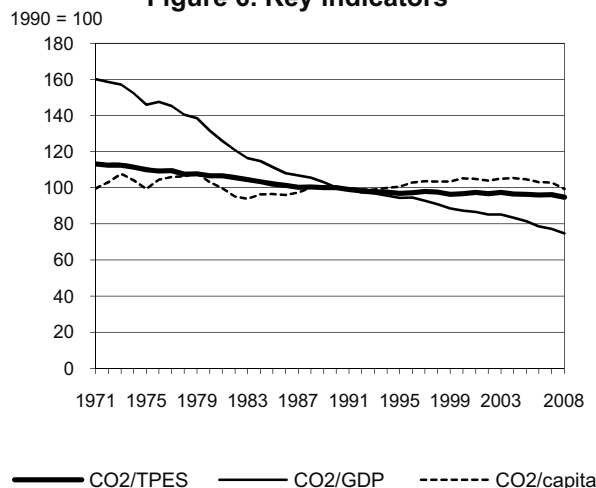
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 678.0	10.2%	20.4	20.4
Road - oil	2 973.0	22.3%	16.5	36.9
Main activity prod. elec. and heat - gas	1 220.4	51.3%	6.8	43.7
Manufacturing industries - gas	764.6	-0.2%	4.2	47.9
Residential - gas	748.0	24.7%	4.2	52.1
Manufacturing industries - oil	659.7	-19.2%	3.7	55.8
Manufacturing industries - coal/peat	593.4	-37.0%	3.3	59.1
Non-specified other - gas	384.4	32.6%	2.1	61.2
Other energy industries - oil	374.9	-5.4%	2.1	63.3
Non-specified other - oil	372.0	-22.2%	2.1	65.3
Other transport - oil	363.6	-16.1%	2.0	67.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>13 903.8</i>	<i>-0.0%</i>	<i>77.2</i>	<i>77.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex II Parties

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Annex II Parties

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	9 801.0	10 199.1	11 003.6	11 321.4	11 209.4	11 280.4	10 951.8	11.7%
CO ₂ Reference Approach (Mt of CO ₂)	9 842.9	10 214.2	11 019.4	11 393.4	11 285.6	11 355.0	11 101.9	12.8%
TPES (PJ)	167 897	180 352	194 893	201 468	200 251	201 148	197 998	17.9%
TPES (Mtoe)	4 010.1	4 307.6	4 654.9	4 812.0	4 782.9	4 804.3	4 729.1	17.9%
GDP (billion 2000 USD)	18 851.9	20 789.0	24 246.7	26 732.3	27 447.5	28 109.7	28 196.6	49.6%
GDP PPP (billion 2000 USD)	18 970.5	20 932.3	24 569.5	27 141.3	27 882.6	28 563.0	28 672.9	51.1%
Population (millions)	799.4	827.8	853.1	881.8	887.5	893.6	899.6	12.5%
CO ₂ / TPES (t CO ₂ per TJ)	58.4	56.6	56.5	56.2	56.0	56.1	55.3	-5.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.52	0.49	0.45	0.42	0.41	0.40	0.39	-25.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.52	0.49	0.45	0.42	0.40	0.39	0.38	-26.1%
CO ₂ / population (t CO ₂ per capita)	12.26	12.32	12.90	12.84	12.63	12.62	12.17	-0.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	3 633.9	4 632.9	2 612.8	72.2	10 951.8	11.7%
Main activity producer elec. and heat	3 039.4	156.2	776.0	34.0	4 005.6	25.8%
Unallocated autoproducers	116.8	48.6	102.9	21.3	289.6	-0.9%
Other energy industries	56.5	314.8	192.1	0.0	563.4	6.4%
Manufacturing industries and construction	396.9	566.7	572.0	13.5	1 549.1	-11.6%
Transport	0.4	2 975.8	47.7	-	3 023.9	19.7%
<i>of which: road</i>	-	2 653.1	3.4	-	2 656.4	24.5%
Other	23.9	570.9	921.9	3.4	1 520.2	0.1%
<i>of which: residential</i>	11.6	257.2	574.4	0.0	843.2	0.1%
Reference Approach	3 710.7	4 708.7	2 610.3	72.2	11 101.9	12.8%
Diff. due to losses and/or transformation	29.0	- 28.4	6.5	-	7.1	
Statistical differences	47.9	104.2	- 9.0	0.0	143.1	
<i>Memo: international marine bunkers</i>	-	259.5	-	-	259.5	16.1%
<i>Memo: international aviation bunkers</i>	-	236.0	-	-	236.0	80.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 039.4	20.4%	22.3	22.3
Road - oil	2 653.1	24.4%	19.4	41.7
Main activity prod. elec. and heat - gas	776.0	156.8%	5.7	47.4
Residential - gas	574.4	29.0%	4.2	51.6
Manufacturing industries - gas	572.0	9.5%	4.2	55.8
Manufacturing industries - oil	566.7	-5.9%	4.2	59.9
Manufacturing industries - coal/peat	396.9	-36.4%	2.9	62.8
Non-specified other - gas	347.5	39.9%	2.5	65.4
Other transport - oil	322.7	-7.3%	2.4	67.8
Other energy industries - oil	314.8	-4.6%	2.3	70.1
Non-specified other - oil	313.7	-12.4%	2.3	72.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>10 951.8</i>	<i>11.7%</i>	<i>80.2</i>	<i>80.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex II: North America

Figure 1. CO₂ emissions by fuel

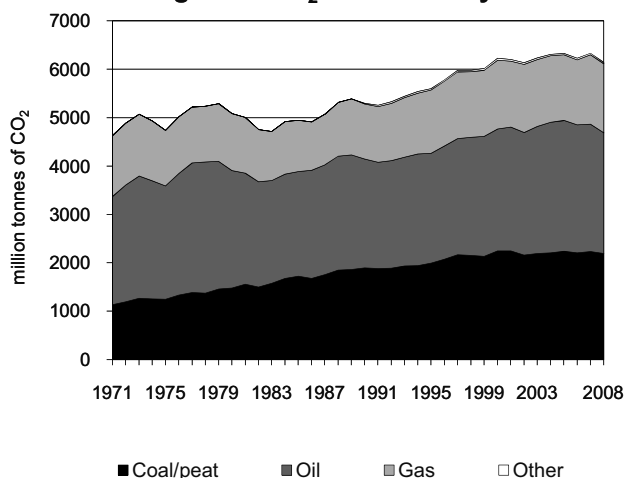


Figure 2. CO₂ emissions by sector

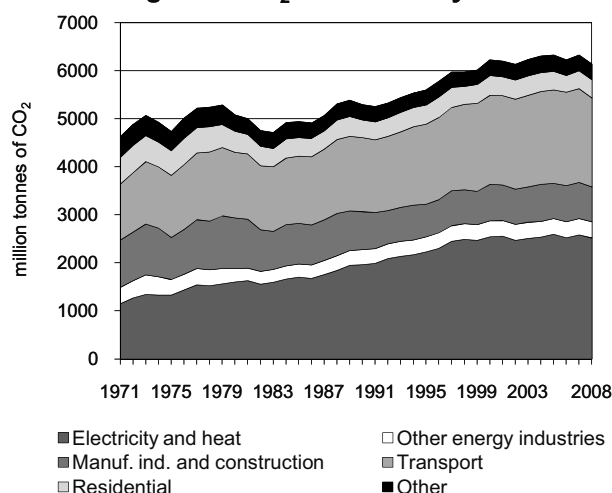


Figure 3. CO₂ emissions by sector

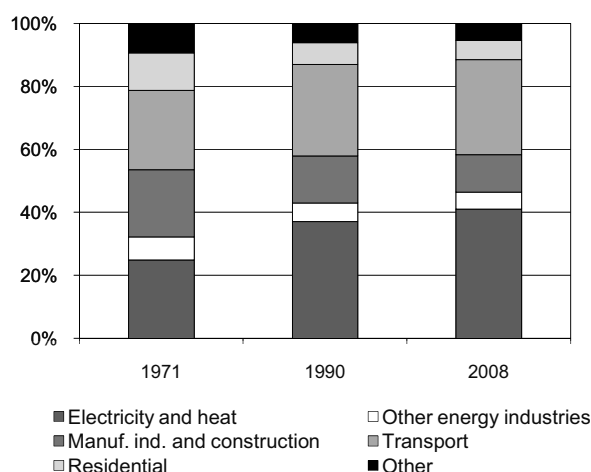


Figure 4. Reference vs Sectoral Approach

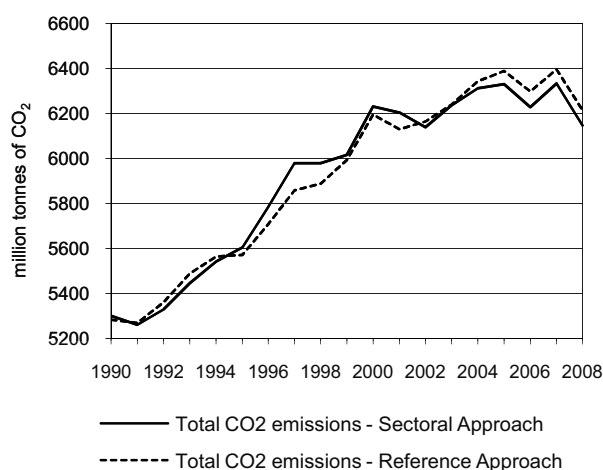


Figure 5. Electricity generation by fuel

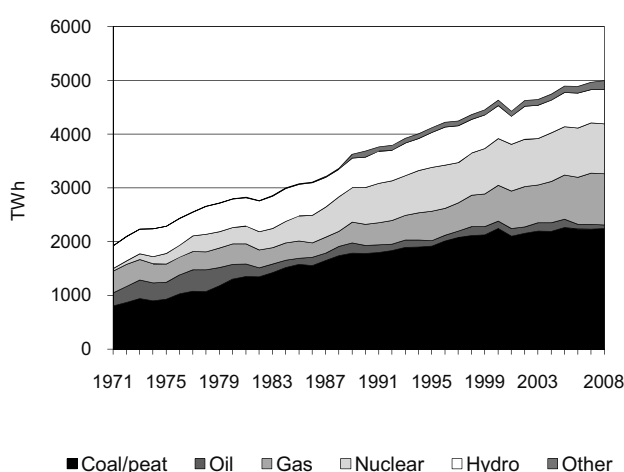
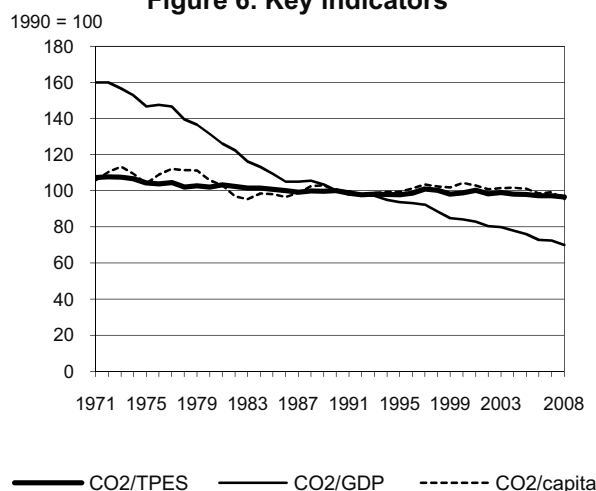


Figure 6. Key indicators



Annex II: North America

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	5 301.0	5 604.0	6 230.9	6 330.5	6 228.5	6 333.5	6 146.8	16.0%
CO ₂ Reference Approach (Mt of CO ₂)	5 283.9	5 571.2	6 195.0	6 389.3	6 297.3	6 396.3	6 214.5	17.6%
TPES (PJ)	88 914	96 218	105 707	108 489	107 402	109 219	106 784	20.1%
TPES (Mtoe)	2 123.7	2 298.1	2 524.8	2 591.2	2 565.3	2 608.6	2 550.5	20.1%
GDP (billion 2000 USD)	7 607.6	8 594.0	10 623.7	11 972.3	12 293.9	12 560.0	12 612.7	65.8%
GDP PPP (billion 2000 USD)	7 719.5	8 715.8	10 772.9	12 141.4	12 467.9	12 738.3	12 791.8	65.7%
Population (millions)	277.9	295.9	313.1	328.3	331.4	334.7	337.9	21.6%
CO ₂ / TPES (t CO ₂ per TJ)	59.6	58.2	58.9	58.4	58.0	58.0	57.6	-3.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.65	0.59	0.53	0.51	0.50	0.49	-30.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.69	0.64	0.58	0.52	0.50	0.50	0.48	-30.0%
CO ₂ / population (t CO ₂ per capita)	19.08	18.94	19.90	19.28	18.79	18.92	18.19	-4.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	2 197.9	2 490.2	1 432.7	26.1	6 146.8	16.0%
Main activity producer elec. and heat	2 021.0	46.4	376.3	13.7	2 457.4	31.4%
Unallocated autoproducers	17.7	7.7	34.7	5.1	65.2	-31.5%
Other energy industries	12.9	179.2	141.4	-	333.5	5.7%
Manufacturing industries and construction	139.3	243.8	341.6	6.2	730.9	-7.3%
Transport	-	1 809.3	44.3	-	1 853.5	20.1%
<i>of which: road</i>	-	1 581.1	1.6	-	1 582.7	28.3%
Other	7.0	203.8	494.4	1.0	706.2	2.6%
<i>of which: residential</i>	0.1	73.7	299.8	-	373.6	2.4%
Reference Approach	2 240.1	2 508.9	1 439.4	26.1	6 214.5	17.6%
Diff. due to losses and/or transformation	18.4	- 41.8	2.7	-	- 20.7	
Statistical differences	23.8	60.5	4.0	0.0	88.3	
<i>Memo: international marine bunkers</i>	-	73.5	-	-	73.5	-21.4%
<i>Memo: international aviation bunkers</i>	-	72.2	-	-	72.2	74.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	2 021.0	25.0%	26.7	26.7
Road - oil	1 581.1	28.2%	20.9	47.6
Main activity prod. elec. and heat - gas	376.3	141.8%	5.0	52.6
Manufacturing industries - gas	341.6	5.7%	4.5	57.1
Residential - gas	299.8	12.6%	4.0	61.0
Manufacturing industries - oil	243.8	0.6%	3.2	64.3
Other transport - oil	228.2	-14.8%	3.0	67.3
Non-specified other - gas	194.6	18.9%	2.6	69.9
Other energy industries - oil	179.2	-4.4%	2.4	72.2
Other energy industries - gas	141.4	13.0%	1.9	74.1
Manufacturing industries - coal/peat	139.3	-37.4%	1.8	75.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>6 146.8</i>	<i>16.0%</i>	<i>81.2</i>	<i>81.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex II: Europe

Figure 1. CO₂ emissions by fuel

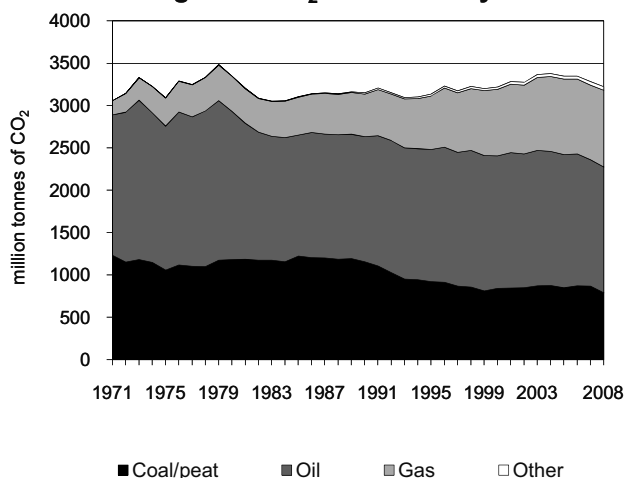


Figure 2. CO₂ emissions by sector

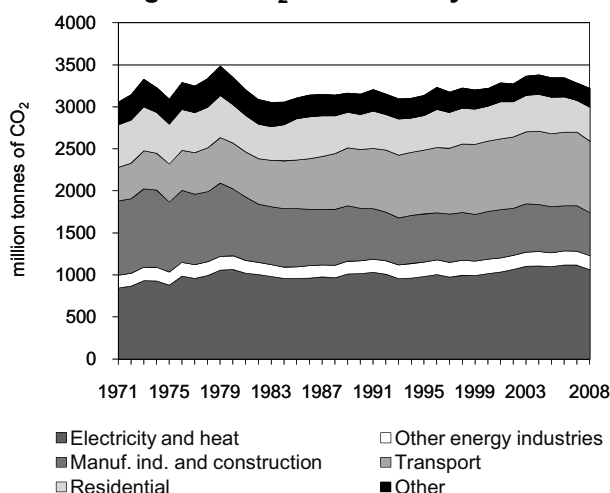


Figure 3. CO₂ emissions by sector

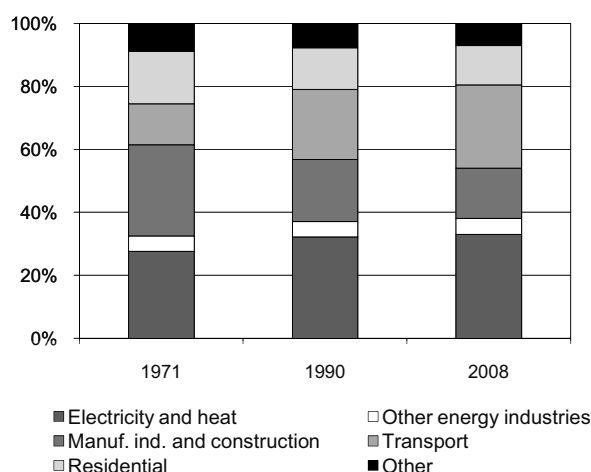


Figure 4. Reference vs Sectoral Approach

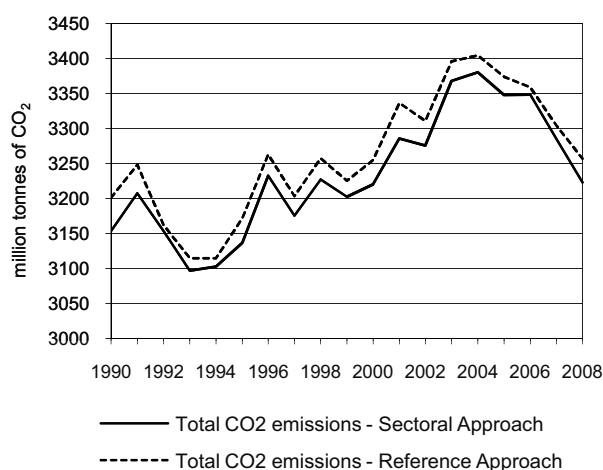


Figure 5. Electricity generation by fuel

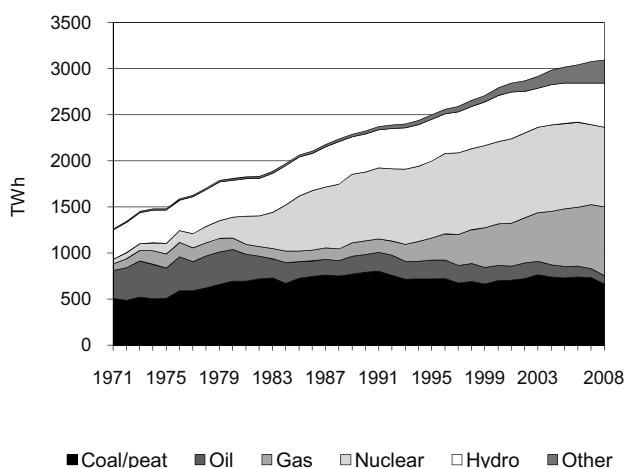
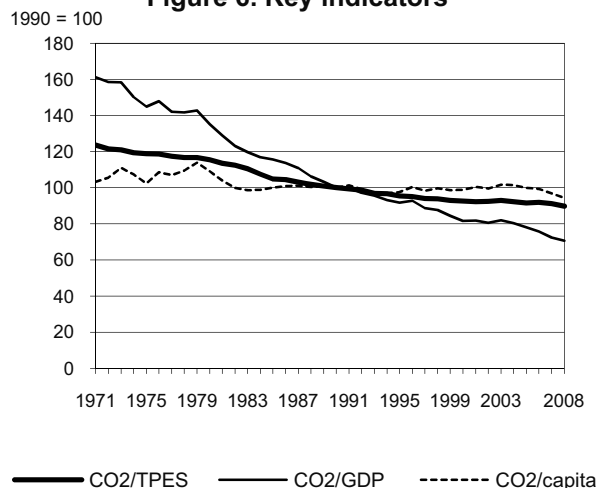


Figure 6. Key indicators



Annex II: Europe

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3 153.6	3 136.8	3 220.1	3 348.0	3 348.3	3 284.9	3 222.9	2.2%
CO ₂ Reference Approach (Mt of CO ₂)	3 200.9	3 171.8	3 255.0	3 374.0	3 358.7	3 303.8	3 256.7	1.7%
TPES (PJ)	56 448	58 864	62 234	65 497	65 267	64 444	64 298	13.9%
TPES (Mtoe)	1 348.2	1 405.9	1 486.4	1 564.4	1 558.9	1 539.2	1 535.7	13.9%
GDP (billion 2000 USD)	6 800.8	7 373.3	8 503.2	9 245.2	9 520.5	9 775.2	9 835.0	44.6%
GDP PPP (billion 2000 USD)	7 949.9	8 616.4	9 940.6	10 815.2	11 137.1	11 435.8	11 503.5	44.7%
Population (millions)	377.3	384.4	389.9	401.1	403.3	405.7	408.2	8.2%
CO ₂ / TPES (t CO ₂ per TJ)	55.9	53.3	51.7	51.1	51.3	51.0	50.1	-10.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.46	0.43	0.38	0.36	0.35	0.34	0.33	-29.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.36	0.32	0.31	0.30	0.29	0.28	-29.4%
CO ₂ / population (t CO ₂ per capita)	8.36	8.16	8.26	8.35	8.30	8.10	7.90	-5.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	791.6	1 483.0	907.1	41.2	3 222.9	2.2%
Main activity producer elec. and heat	594.2	44.7	260.2	19.1	918.2	4.3%
Unallocated autoproducers	52.5	23.6	55.8	13.9	145.7	7.7%
Other energy industries	22.5	104.4	37.4	0.0	164.4	7.0%
Manufacturing industries and construction	108.3	209.0	191.0	5.9	514.3	-17.4%
Transport	-	848.0	2.5	-	850.5	21.2%
<i>of which: road</i>	-	789.0	1.6	-	790.6	21.3%
Other	14.1	253.2	360.2	2.3	629.8	-4.4%
<i>of which: residential</i>	11.4	145.0	246.4	0.0	402.8	-3.2%
Reference Approach	794.2	1 512.9	908.4	41.2	3 256.7	1.7%
Diff. due to losses and/or transformation	8.9	12.4	5.3	-	26.6	
Statistical differences	- 6.3	17.5	- 4.0	0.0	7.2	
<i>Memo: international marine bunkers</i>	-	164.8	-	-	164.8	51.2%
<i>Memo: international aviation bunkers</i>	-	134.6	-	-	134.6	92.4%

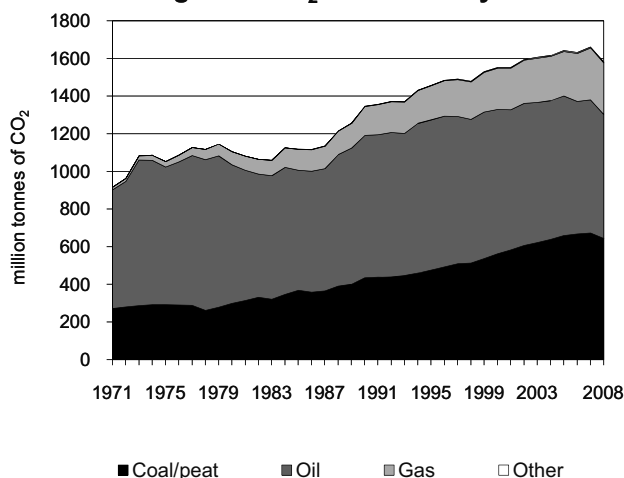
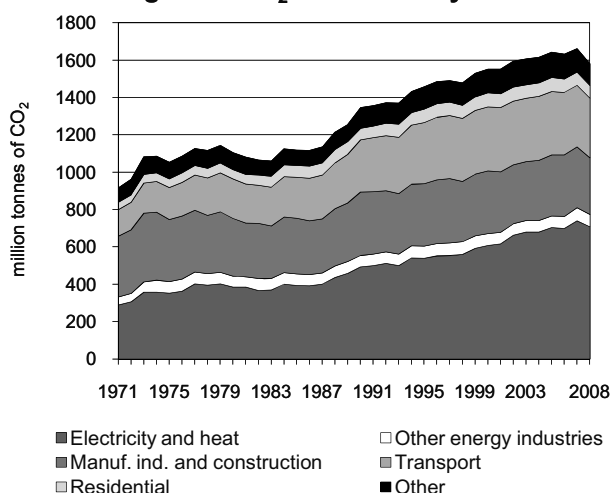
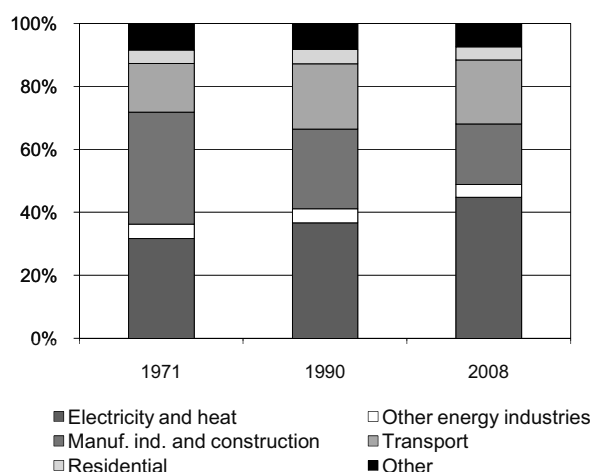
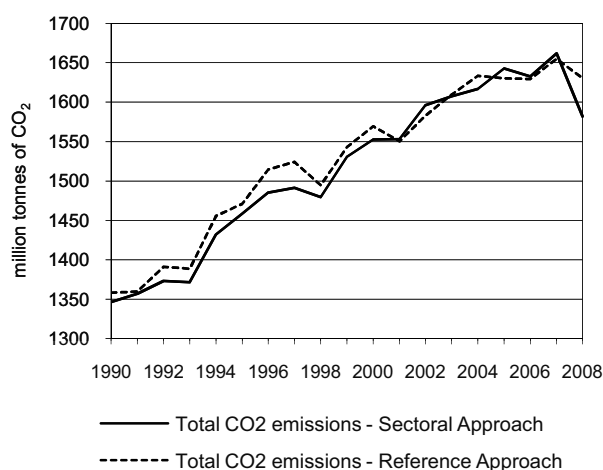
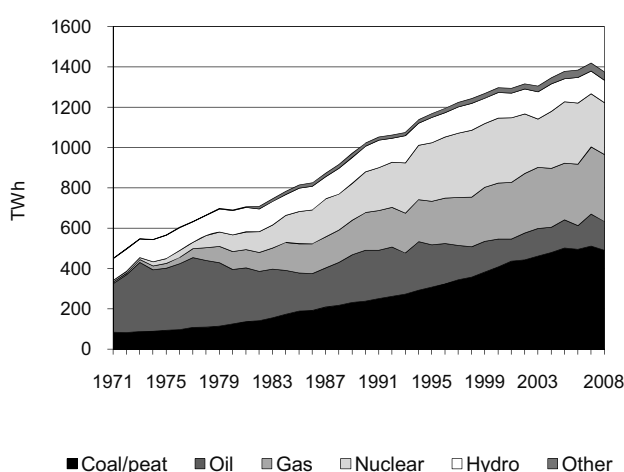
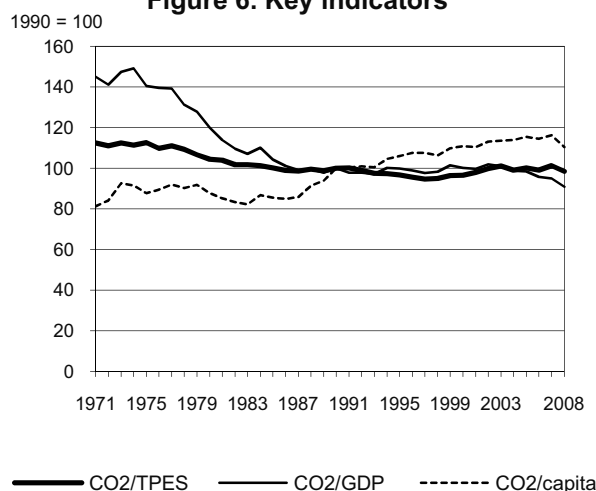
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	789.0	21.2%	19.0	19.0
Main activity prod. elec. and heat - coal/peat	594.2	-14.8%	14.3	33.3
Main activity prod. elec. and heat - gas	260.2	338.2%	6.3	39.6
Residential - gas	246.4	56.5%	5.9	45.5
Manufacturing industries - oil	209.0	-1.7%	5.0	50.6
Manufacturing industries - gas	191.0	9.6%	4.6	55.2
Residential - oil	145.0	-21.5%	3.5	58.7
Non-specified other - gas	113.8	54.5%	2.7	61.4
Manufacturing industries - coal/peat	108.3	-53.7%	2.6	64.0
Non-specified other - oil	108.2	-20.1%	2.6	66.6
Other energy industries - oil	104.4	-1.6%	2.5	69.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 222.9</i>	<i>2.2%</i>	<i>77.6</i>	<i>77.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex II: Pacific

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Annex II: Pacific

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1 346.4	1 458.3	1 552.7	1 642.9	1 632.6	1 662.0	1 582.0	17.5%
CO ₂ Reference Approach (Mt of CO ₂)	1 358.0	1 471.2	1 569.4	1 630.2	1 629.6	1 654.8	1 630.7	20.1%
TPES (PJ)	22 535	25 270	26 952	27 483	27 582	27 485	26 916	19.4%
TPES (Mtoe)	538.2	603.6	643.7	656.4	658.8	656.5	642.9	19.4%
GDP (billion 2000 USD)	4 443.4	4 821.7	5 119.7	5 514.8	5 633.0	5 774.6	5 748.9	29.4%
GDP PPP (billion 2000 USD)	3 301.1	3 600.1	3 856.0	4 184.7	4 277.6	4 388.9	4 377.6	32.6%
Population (millions)	144.3	147.5	150.1	152.5	152.8	153.2	153.5	6.4%
CO ₂ / TPES (t CO ₂ per TJ)	59.8	57.7	57.6	59.8	59.2	60.5	58.8	-1.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.30	0.30	0.30	0.30	0.29	0.29	0.28	-9.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.41	0.41	0.40	0.39	0.38	0.38	0.36	-11.4%
CO ₂ / population (t CO ₂ per capita)	9.33	9.89	10.35	10.78	10.68	10.85	10.31	10.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	644.4	659.7	273.0	4.9	1 582.0	17.5%
Main activity producer elec. and heat	424.1	65.1	139.5	1.2	629.9	45.7%
Unallocated autoproducers	46.7	17.3	12.4	2.3	78.7	27.6%
Other energy industries	21.0	31.1	13.4	-	65.5	8.5%
Manufacturing industries and construction	149.3	113.8	39.3	1.3	303.8	-10.7%
Transport	0.4	318.5	1.0	-	319.9	14.4%
<i>of which: road</i>	-	283.0	0.1	-	283.1	13.7%
Other	2.9	113.9	67.4	-	184.2	6.9%
<i>of which: residential</i>	0.1	38.5	28.3	-	66.8	8.2%
Reference Approach	676.4	686.9	262.5	4.9	1 630.7	20.1%
Diff. due to losses and/or transformation	1.7	1.0	- 1.5	-	1.2	
Statistical differences	30.3	26.3	- 9.0	-	47.6	
<i>Memo: international marine bunkers</i>	-	21.1	-	-	21.1	1.3%
<i>Memo: international aviation bunkers</i>	-	29.1	-	-	29.1	53.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	424.1	100.6%	21.9	21.9
Road - oil	283.0	13.8%	14.6	36.6
Manufacturing industries - coal/peat	149.3	-10.8%	7.7	44.3
Main activity prod. elec. and heat - gas	139.5	59.9%	7.2	51.5
Manufacturing industries - oil	113.8	-22.6%	5.9	57.4
Non-specified other - oil	75.4	-20.4%	3.9	61.3
Main activity prod. elec. and heat - oil	65.1	-51.2%	3.4	64.7
Unallocated autoproducers - coal/peat	46.7	41.3%	2.4	67.1
Manufacturing industries - gas	39.3	58.0%	2.0	69.1
Non-specified other - gas	39.1	254.3%	2.0	71.2
Residential - oil	38.5	-2.4%	2.0	73.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 582.0</i>	<i>17.5%</i>	<i>81.9</i>	<i>81.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Economies in Transition

Figure 1. CO₂ emissions by fuel

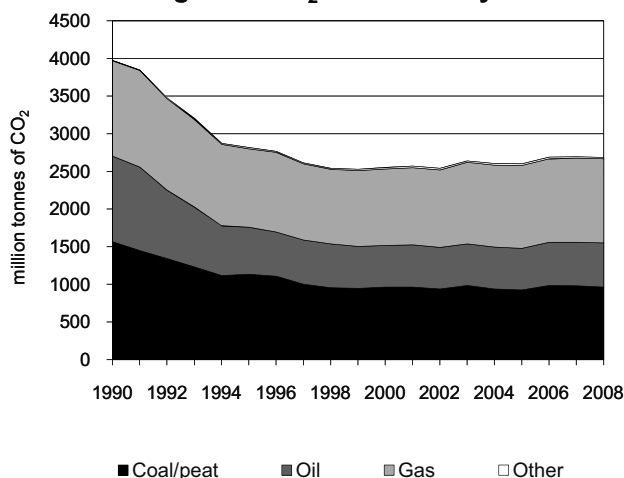


Figure 2. CO₂ emissions by sector

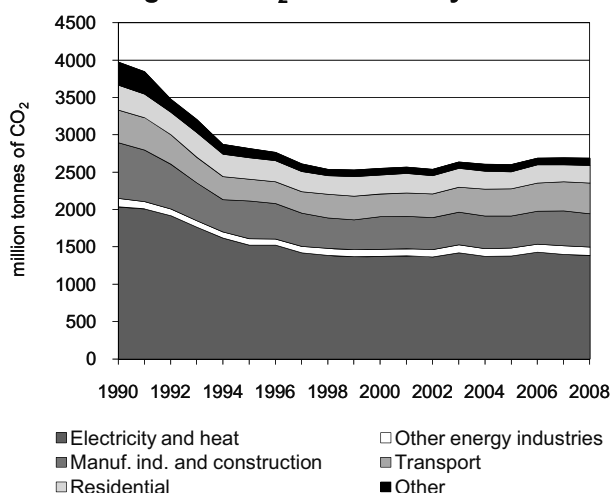


Figure 3. CO₂ emissions by sector

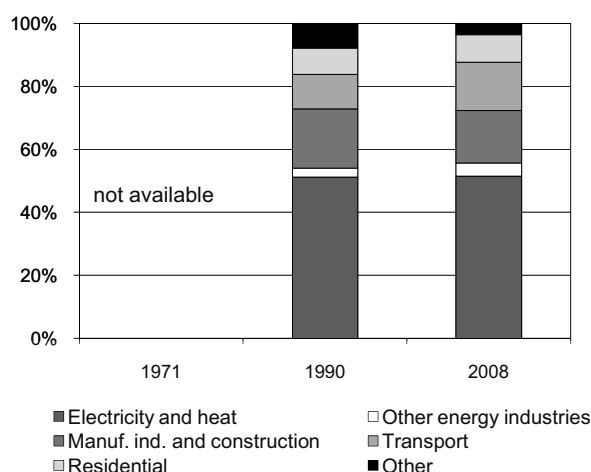


Figure 4. Reference vs Sectoral Approach

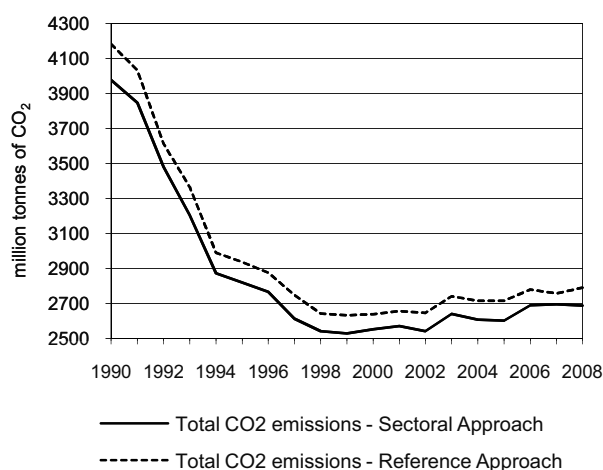


Figure 5. Electricity generation by fuel

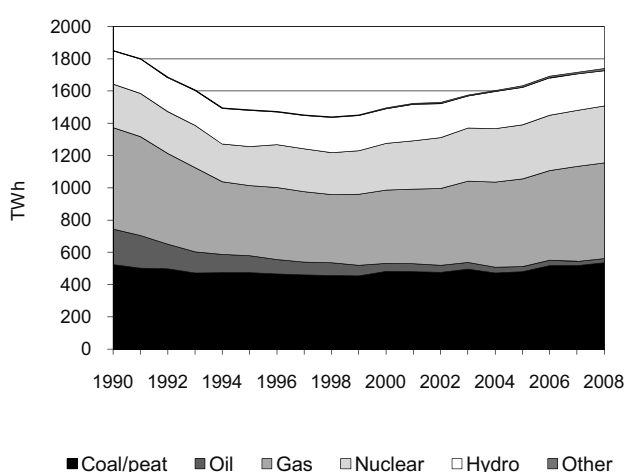
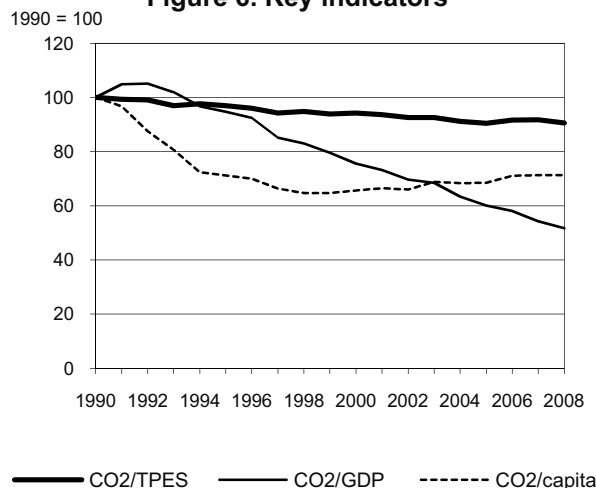


Figure 6. Key indicators



Economies in Transition

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3 976.9	2 820.6	2 553.7	2 603.2	2 691.1	2 695.9	2 688.5	-32.4%
CO ₂ Reference Approach (Mt of CO ₂)	4 182.3	2 937.4	2 639.7	2 715.1	2 780.6	2 758.3	2 791.2	-33.3%
TPES (PJ)	63 531	46 478	43 311	45 959	46 907	46 931	47 451	-25.3%
TPES (Mtoe)	1 517.4	1 110.1	1 034.5	1 097.7	1 120.3	1 120.9	1 133.3	-25.3%
GDP (billion 2000 USD)	842.1	630.7	715.2	916.9	981.6	1 051.0	1 100.1	30.6%
GDP PPP (billion 2000 USD)	3 015.6	2 092.6	2 312.7	3 014.2	3 231.8	3 466.3	3 632.9	20.5%
Population (millions)	320.8	319.7	314.1	306.7	305.6	304.8	304.3	-5.1%
CO ₂ / TPES (t CO ₂ per TJ)	62.6	60.7	59.0	56.6	57.4	57.4	56.7	-9.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.72	4.47	3.57	2.84	2.74	2.57	2.44	-48.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.32	1.35	1.10	0.86	0.83	0.78	0.74	-43.9%
CO ₂ / population (t CO ₂ per capita)	12.40	8.82	8.13	8.49	8.81	8.84	8.84	-28.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	964.3	587.9	1 116.6	19.7	2 688.5	-32.4%
Main activity producer elec. and heat	584.0	19.4	410.7	0.8	1 014.8	-35.2%
Unallocated autoproducers	124.5	31.3	201.7	13.6	371.2	-21.2%
Other energy industries	18.1	56.4	37.5	0.7	112.6	-0.9%
Manufacturing industries and construction	171.1	87.7	184.7	4.4	448.0	-39.9%
Transport	0.2	316.1	94.0	-	410.3	-5.9%
<i>of which: road</i>	-	280.5	0.6	-	281.1	2.1%
Other	66.4	76.8	188.1	0.3	331.5	-48.6%
<i>of which: residential</i>	43.9	32.5	158.4	-	234.8	-29.7%
Reference Approach	1 026.2	606.8	1 138.3	19.8	2 791.2	-33.3%
Diff. due to losses and/or transformation	19.8	17.4	21.8	0.0	59.0	
Statistical differences	42.1	1.6	-0.1	0.1	43.7	
<i>Memo: international marine bunkers</i>	-	3.5	-	-	3.5	-64.6%
<i>Memo: international aviation bunkers</i>	-	23.5	-	-	23.5	-35.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	584.0	-26.2%	14.6	14.6
Main activity prod. elec. and heat - gas	410.7	-17.8%	10.3	24.9
Road - oil	280.5	2.9%	7.0	31.9
Unallocated autoproducers - gas	201.7	-9.4%	5.0	36.9
Manufacturing industries - gas	184.7	-23.7%	4.6	41.5
Manufacturing industries - coal/peat	171.1	-42.8%	4.3	45.8
Residential - gas	158.4	2.7%	4.0	49.8
Unallocated autoproducers - coal/peat	124.5	-24.0%	3.1	52.9
Other transport - gas	93.4	21.1%	2.3	55.2
Manufacturing industries - oil	87.7	-56.5%	2.2	57.4
Other energy industries - oil	56.4	-9.9%	1.4	58.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 688.5</i>	<i>-32.4%</i>	<i>67.2</i>	<i>67.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Non-Annex I Parties

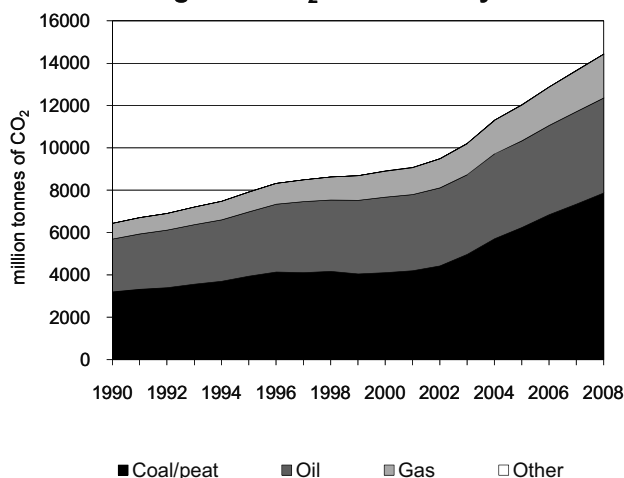
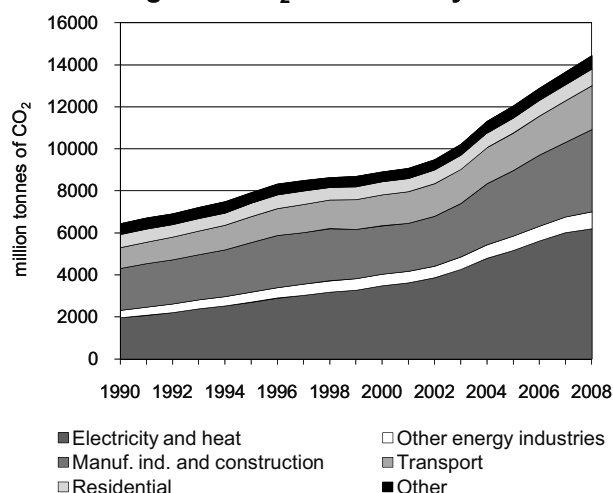
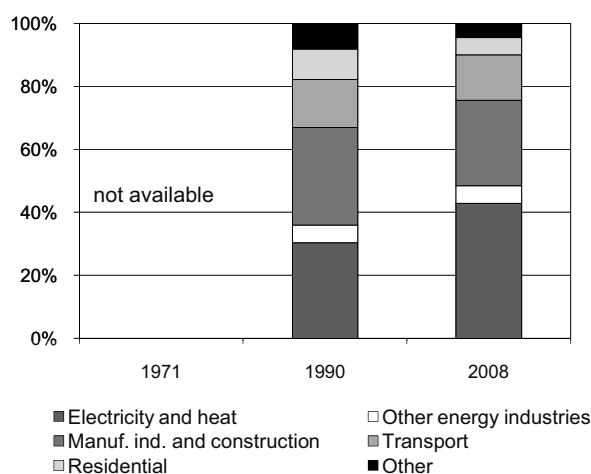
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

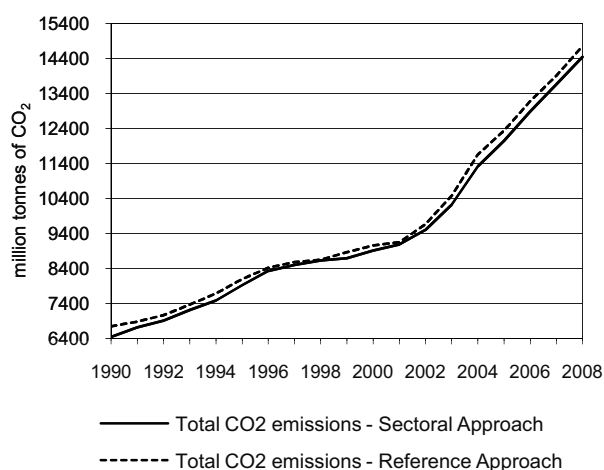


Figure 5. Electricity generation by fuel

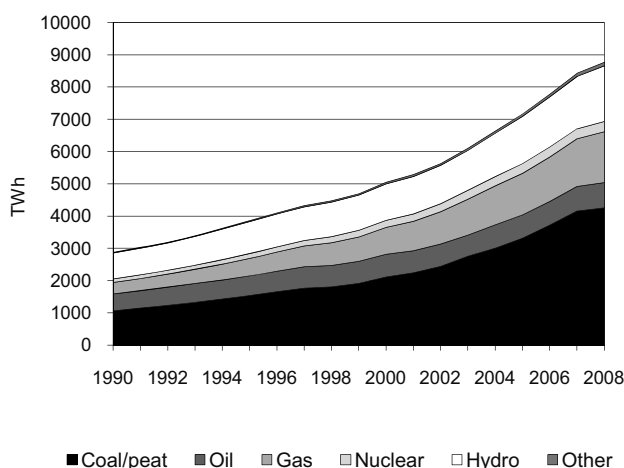
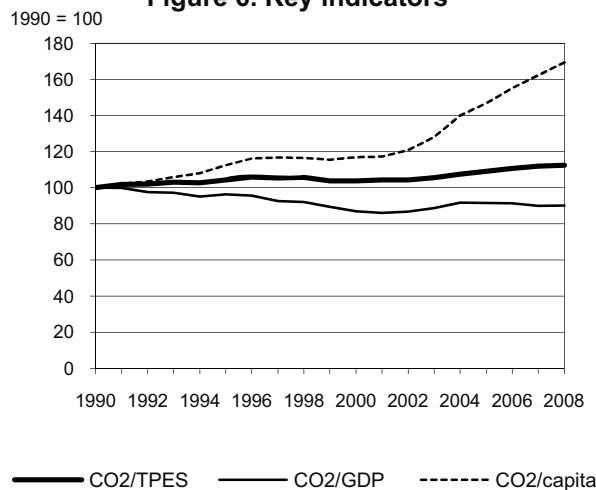


Figure 6. Key indicators



Non-Annex I Parties

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	6 447.1	7 924.8	8 915.6	12 044.3	12 890.9	13 668.3	14 444.6	124.0%
CO ₂ Reference Approach (Mt of CO ₂)	6 747.0	8 102.3	9 058.5	12 342.7	13 178.1	13 912.9	14 749.5	118.6%
TPES (PJ)	125 513	148 042	167 130	214 785	226 627	237 904	250 021	99.2%
TPES (Mtoe)	2 997.8	3 535.9	3 991.8	5 130.1	5 412.9	5 682.2	5 971.7	99.2%
GDP (billion 2000 USD)	4 348.9	5 553.2	6 921.7	8 867.0	9 515.5	10 250.4	10 808.9	148.5%
GDP PPP (billion 2000 USD)	10 959.8	14 323.6	18 289.6	24 546.4	26 564.4	28 894.8	30 728.8	180.4%
Population (millions)	4 089.9	4 473.1	4 842.6	5 201.5	5 272.0	5 341.8	5 413.0	32.3%
CO ₂ / TPES (t CO ₂ per TJ)	51.4	53.5	53.3	56.1	56.9	57.5	57.8	12.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.48	1.43	1.29	1.36	1.35	1.33	1.34	-9.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.59	0.55	0.49	0.49	0.49	0.47	0.47	-20.1%
CO ₂ / population (t CO ₂ per capita)	1.58	1.77	1.84	2.32	2.45	2.56	2.67	69.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	7 881.7	4 489.4	2 061.9	11.6	14 444.6	124.0%
Main activity producer elec. and heat	4 544.8	533.5	771.9	0.0	5 850.2	219.0%
Unallocated autoproducers	201.7	69.6	77.8	3.2	352.4	174.7%
Other energy industries	202.8	300.7	303.9	-	807.4	124.1%
Manufacturing industries and construction	2 500.6	872.5	527.3	7.7	3 908.1	96.0%
Transport	12.8	2 040.7	38.7	-	2 092.3	113.2%
<i>of which: road</i>	-	1 839.9	31.4	-	1 871.4	119.5%
Other	418.9	672.5	342.2	0.7	1 434.3	24.8%
<i>of which: residential</i>	224.7	337.6	225.3	-	787.6	26.6%
Reference Approach	8 050.3	4 558.7	2 129.0	11.6	14 749.5	118.6%
Diff. due to losses and/or transformation	231.1	61.1	50.5	-	342.7	
Statistical differences	- 62.5	8.2	16.6	0.0	- 37.8	
<i>Memo: international marine bunkers</i>	-	313.2	-	-	313.2	158.4%
<i>Memo: international aviation bunkers</i>	-	191.5	-	-	191.5	111.2%

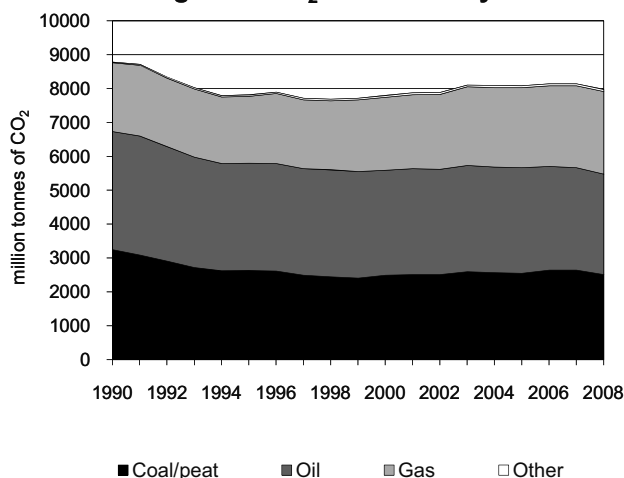
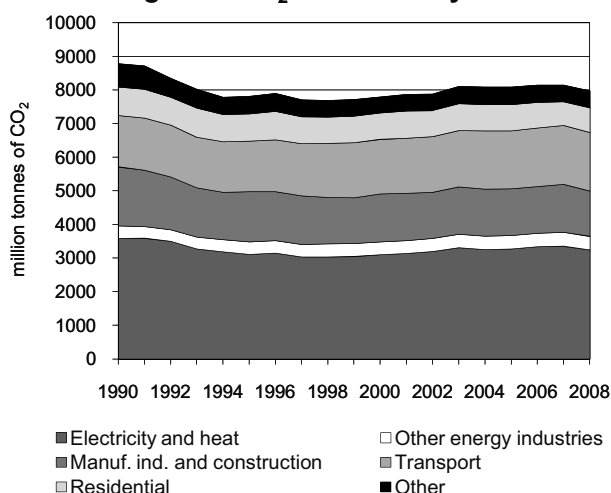
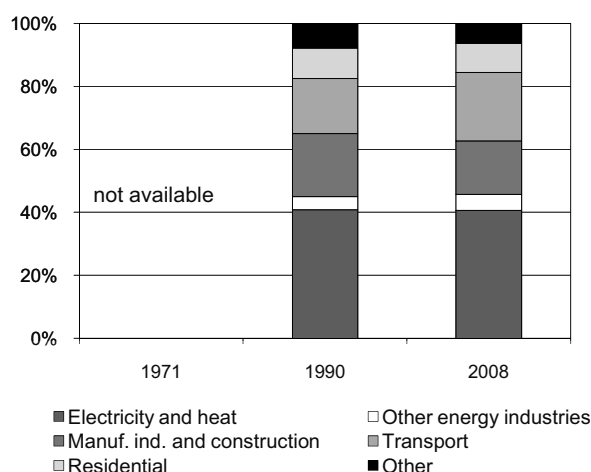
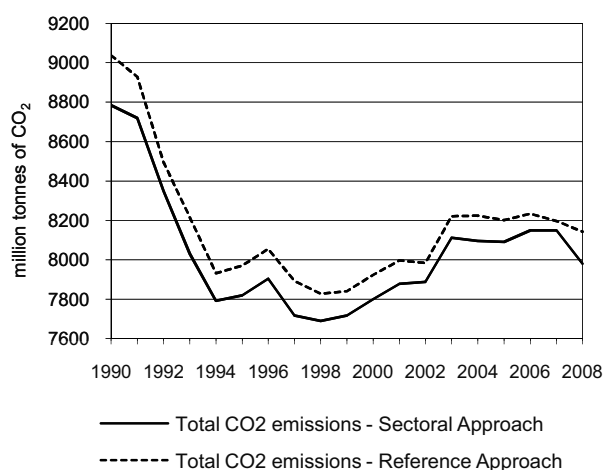
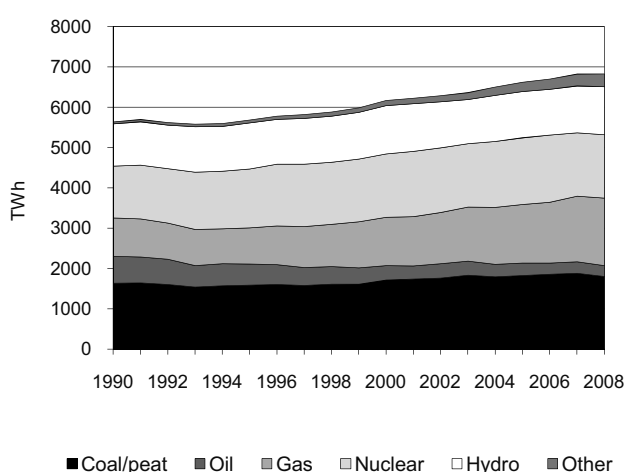
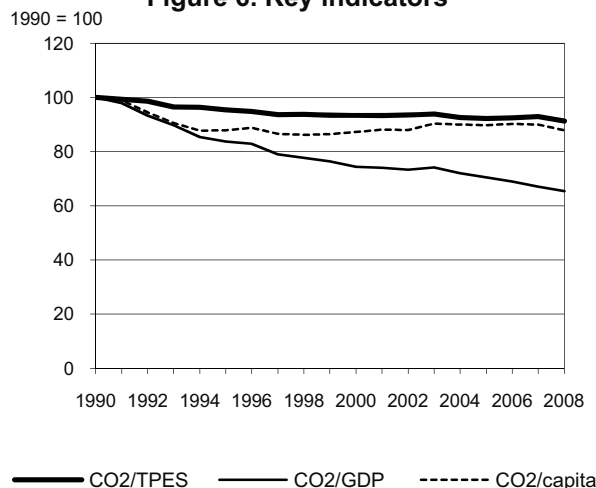
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	4 544.8	273.7%	18.9	18.9
Manufacturing industries - coal/peat	2 500.6	100.3%	10.4	29.3
Road - oil	1 839.9	116.0%	7.7	37.0
Manufacturing industries - oil	872.5	65.7%	3.6	40.6
Main activity prod. elec. and heat - gas	771.9	251.0%	3.2	43.8
Main activity prod. elec. and heat - oil	533.5	34.1%	2.2	46.0
Manufacturing industries - gas	527.3	142.8%	2.2	48.2
Residential - oil	337.6	62.5%	1.4	49.6
Non-specified other - oil	334.9	33.6%	1.4	51.0
Other energy industries - gas	303.9	129.8%	1.3	52.3
Other energy industries - oil	300.7	88.3%	1.3	53.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>14 444.6</i>	<i>124.0%</i>	<i>60.1</i>	<i>60.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Annex I Kyoto Parties

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Annex I Kyoto Parties

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	8 785.3	7 819.5	7 800.5	8 090.9	8 149.4	8 149.7	7 980.1	-9.2%
CO ₂ Reference Approach (Mt of CO ₂)	9 037.4	7 970.1	7 922.9	8 200.7	8 233.9	8 196.3	8 142.8	-9.9%
TPES (PJ)	149 344	139 244	141 991	149 216	149 803	149 078	148 656	-0.5%
TPES (Mtoe)	3 567.0	3 325.8	3 391.4	3 564.0	3 578.0	3 560.7	3 550.6	-0.5%
GDP (billion 2000 USD)	12 615.6	13 408.4	15 050.4	16 480.5	16 960.4	17 445.7	17 530.3	39.0%
GDP PPP (billion 2000 USD)	14 867.9	14 987.6	16 935.3	18 936.1	19 589.9	20 253.7	20 472.9	37.7%
Population (millions)	859.8	870.7	874.8	882.7	884.6	887.0	889.6	3.5%
CO ₂ / TPES (t CO ₂ per TJ)	58.8	56.2	54.9	54.2	54.4	54.7	53.7	-8.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.58	0.52	0.49	0.48	0.47	0.46	-34.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.59	0.52	0.46	0.43	0.42	0.40	0.39	-34.0%
CO ₂ / population (t CO ₂ per capita)	10.22	8.98	8.92	9.17	9.21	9.19	8.97	-12.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	2 510.6	2 972.4	2 431.8	65.4	7 980.1	-9.2%
Main activity producer elec. and heat	1 694.4	135.6	798.4	21.0	2 649.4	-9.8%
Unallocated autoproducers	223.4	73.0	269.6	29.8	595.9	-8.9%
Other energy industries	61.8	219.5	124.4	0.5	406.2	10.6%
Manufacturing industries and construction	447.9	429.4	462.5	11.5	1 351.2	-23.2%
Transport	0.6	1 631.7	103.9	-	1 736.1	13.4%
<i>of which: road</i>	-	1 474.9	2.4	-	1 477.3	16.9%
Other	82.5	483.1	673.0	2.6	1 241.2	-19.2%
<i>of which: residential</i>	54.6	218.2	464.8	0.0	737.7	-12.7%
Reference Approach	2 598.3	3 032.5	2 446.5	65.5	8 142.8	-9.9%
Diff. due to losses and/or transformation	31.4	7.0	30.6	0.0	69.0	
Statistical differences	56.4	53.1	- 16.0	0.1	93.6	
<i>Memo: international marine bunkers</i>	-	191.0	-	-	191.0	34.1%
<i>Memo: international aviation bunkers</i>	-	189.0	-	-	189.0	47.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 694.4	-5.0%	15.8	15.8
Road - oil	1 474.9	17.1%	13.7	29.5
Main activity prod. elec. and heat - gas	798.4	25.7%	7.4	36.9
Residential - gas	464.8	29.8%	4.3	41.2
Manufacturing industries - gas	462.5	-3.9%	4.3	45.5
Manufacturing industries - coal/peat	447.9	-37.4%	4.2	49.7
Manufacturing industries - oil	429.4	-22.9%	4.0	53.7
Unallocated autoproducers - gas	269.6	12.2%	2.5	56.2
Non-specified other - oil	264.9	-25.7%	2.5	58.7
Unallocated autoproducers - coal/peat	223.4	-21.6%	2.1	60.7
Other energy industries - oil	219.5	-1.8%	2.0	62.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>7 980.1</i>	<i>-9.2%</i>	<i>74.2</i>	<i>74.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

OECD Total

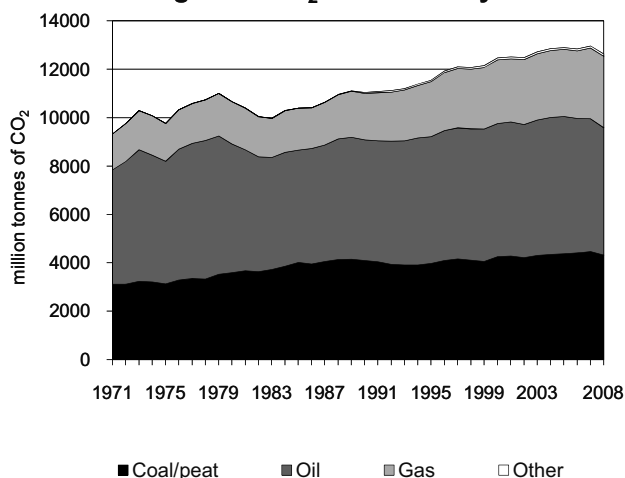
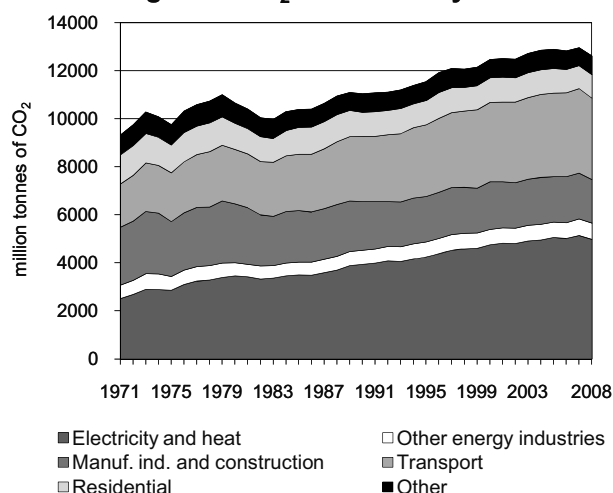
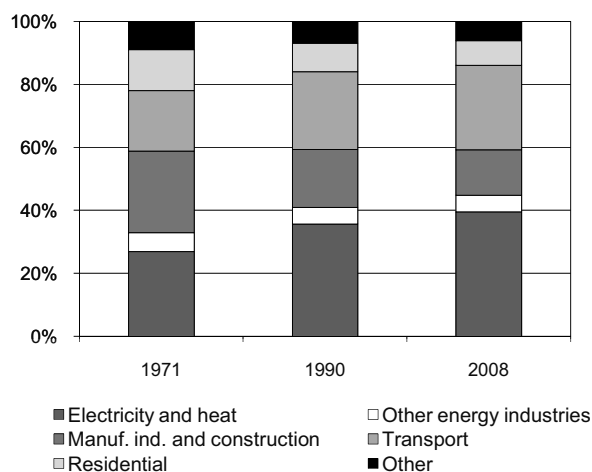
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

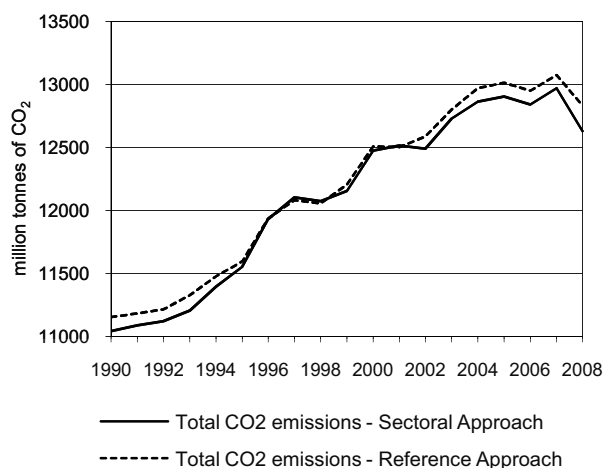


Figure 5. Electricity generation by fuel

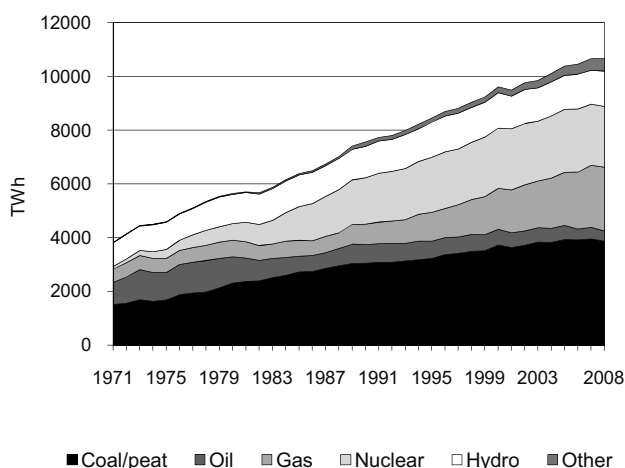
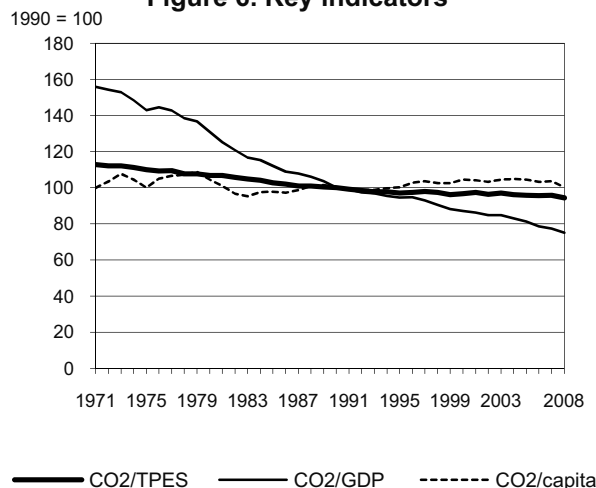


Figure 6. Key indicators



OECD Total

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	11 044.5	11 554.5	12 475.9	12 903.0	12 841.3	12 970.5	12 629.6	14.4%
CO ₂ Reference Approach (Mt of CO ₂)	11 155.7	11 596.4	12 508.5	13 012.2	12 950.6	13 074.3	12 831.8	15.0%
TPES (PJ)	187 531	202 130	219 131	228 612	228 191	229 861	227 026	21.1%
TPES (Mtoe)	4 479.1	4 827.8	5 233.9	5 460.3	5 450.3	5 490.1	5 422.4	21.1%
GDP (billion 2000 USD)	20 022.4	22 166.1	25 979.0	28 779.9	29 609.3	30 371.4	30 503.7	52.3%
GDP PPP (billion 2000 USD)	21 130.9	23 430.0	27 696.6	30 852.1	31 805.3	32 671.8	32 868.3	55.5%
Population (millions)	1 042.7	1 088.1	1 126.8	1 166.2	1 173.8	1 181.9	1 189.8	14.1%
CO ₂ / TPES (t CO ₂ per TJ)	58.9	57.2	56.9	56.4	56.3	56.4	55.6	-5.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.52	0.48	0.45	0.43	0.43	0.41	-24.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.52	0.49	0.45	0.42	0.40	0.40	0.38	-26.5%
CO ₂ / population (t CO ₂ per capita)	10.59	10.62	11.07	11.06	10.94	10.97	10.61	0.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	4 323.7	5 272.0	2 948.6	85.4	12 629.6	14.4%
Main activity producer elec. and heat	3 481.3	202.3	904.7	34.7	4 623.0	30.3%
Unallocated autoproducers	167.8	61.8	116.7	22.6	369.0	-6.0%
Other energy industries	84.1	361.7	226.4	0.0	672.3	14.2%
Manufacturing industries and construction	502.8	653.1	639.3	23.9	1 819.1	-10.4%
Transport	0.4	3 334.0	52.1	-	3 386.5	24.5%
<i>of which: road</i>	-	2 994.3	5.1	-	2 999.4	30.0%
Other	87.2	659.1	1 009.3	4.2	1 759.8	-0.4%
<i>of which: residential</i>	60.0	291.2	633.2	0.0	984.4	-1.2%
Reference Approach	4 420.3	5 378.1	2 948.1	85.4	12 831.8	15.0%
Diff. due to losses and/or transformation	44.3	- 4.3	8.2	0.0	48.3	
Statistical differences	52.3	110.4	- 8.7	0.0	153.9	
<i>Memo: international marine bunkers</i>	-	294.7	-	-	294.7	28.0%
<i>Memo: international aviation bunkers</i>	-	264.1	-	-	264.1	90.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 481.3	24.5%	21.8	21.8
Road - oil	2 994.3	29.8%	18.8	40.6
Main activity prod. elec. and heat - gas	904.7	176.5%	5.7	46.3
Manufacturing industries - oil	653.1	-7.4%	4.1	50.4
Manufacturing industries - gas	639.3	10.4%	4.0	54.4
Residential - gas	633.2	36.5%	4.0	58.4
Manufacturing industries - coal/peat	502.8	-31.9%	3.2	61.5
Non-specified other - gas	376.1	46.3%	2.4	63.9
Non-specified other - oil	367.9	-10.7%	2.3	66.2
Other energy industries - oil	361.7	0.8%	2.3	68.5
Other transport - oil	339.7	-8.0%	2.1	70.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>12 629.6</i>	<i>14.4%</i>	<i>79.2</i>	<i>79.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

OECD North America

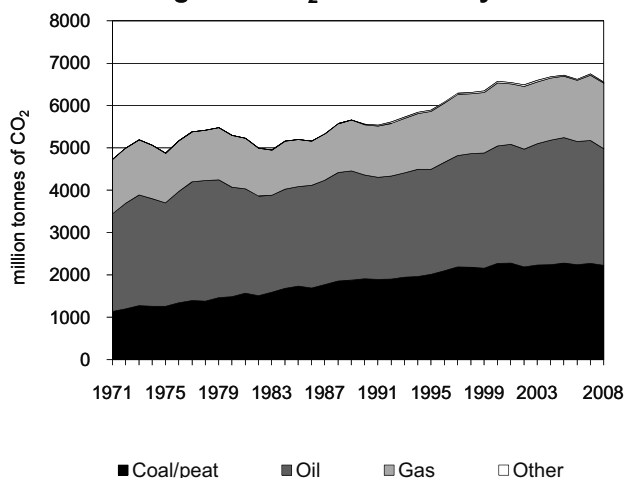
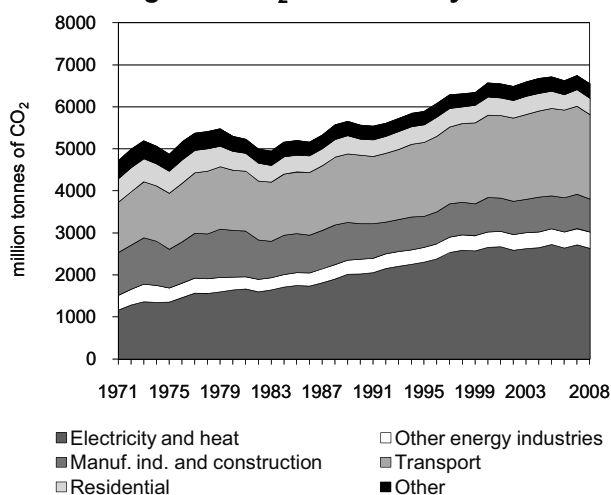
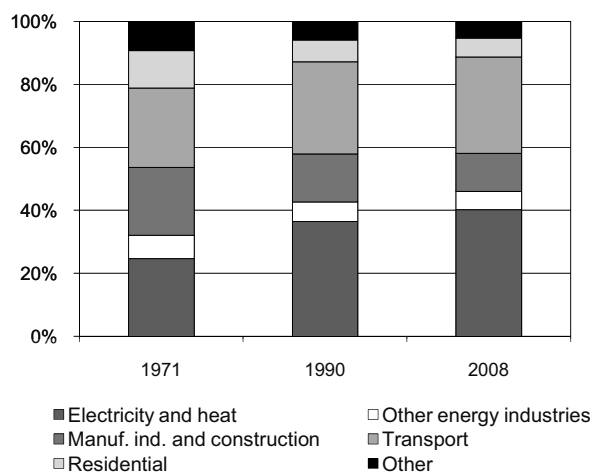
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

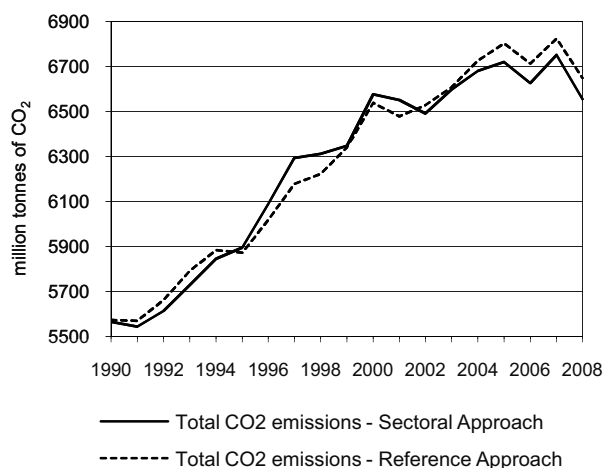


Figure 5. Electricity generation by fuel

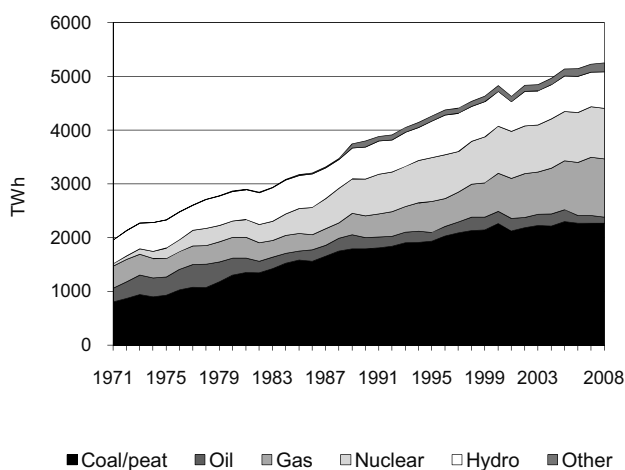
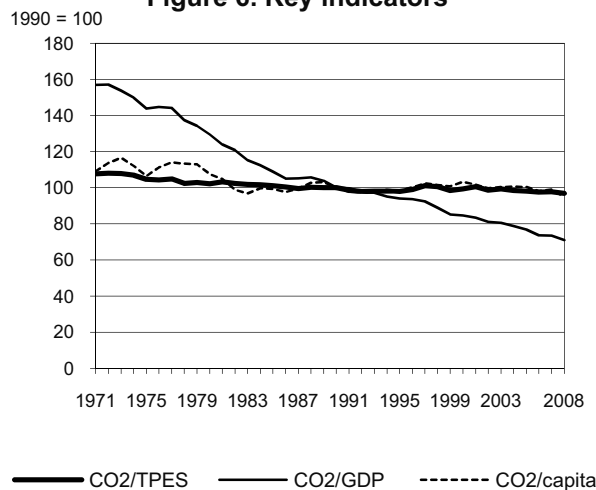


Figure 6. Key indicators



OECD North America

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	5 565.9	5 894.9	6 576.7	6 720.2	6 625.4	6 751.1	6 555.1	17.8%
CO ₂ Reference Approach (Mt of CO ₂)	5 573.7	5 872.4	6 537.5	6 802.6	6 712.4	6 823.0	6 648.9	19.3%
TPES (PJ)	93 991	101 654	111 769	115 612	114 590	116 600	114 346	21.7%
TPES (Mtoe)	2 244.9	2 428.0	2 669.6	2 761.3	2 736.9	2 784.9	2 731.1	21.7%
GDP (billion 2000 USD)	8 060.2	9 082.2	11 260.4	12 671.0	13 027.8	13 319.0	13 381.9	66.0%
GDP PPP (billion 2000 USD)	8 421.1	9 472.7	11 760.0	13 224.5	13 605.5	13 915.0	13 984.3	66.1%
Population (millions)	359.1	387.0	411.4	432.1	436.1	440.3	444.4	23.8%
CO ₂ / TPES (t CO ₂ per TJ)	59.2	58.0	58.8	58.1	57.8	57.9	57.3	-3.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.69	0.65	0.58	0.53	0.51	0.51	0.49	-29.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.66	0.62	0.56	0.51	0.49	0.49	0.47	-29.1%
CO ₂ / population (t CO ₂ per capita)	15.50	15.23	15.99	15.55	15.19	15.33	14.75	-4.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	2 228.7	2 755.2	1 545.1	26.1	6 555.1	17.8%
Main activity producer elec. and heat	2 041.4	78.1	424.5	13.7	2 557.8	32.3%
Unallocated autoproducers	18.8	13.3	41.6	5.1	78.8	-17.3%
Other energy industries	13.0	198.9	171.7	-	383.6	11.4%
Manufacturing industries and construction	148.5	270.7	366.4	6.2	791.7	-7.0%
Transport	-	1 960.6	44.3	-	2 004.9	23.2%
<i>of which: road</i>	-	1 727.9	1.7	-	1 729.5	31.7%
Other	7.0	233.7	496.6	1.0	738.3	3.4%
<i>of which: residential</i>	0.1	91.2	301.5	-	392.8	2.4%
Reference Approach	2 270.1	2 800.9	1 551.9	26.1	6 648.9	19.3%
Diff. due to losses and/or transformation	18.1	- 21.2	2.7	-	- 0.4	
Statistical differences	23.2	66.9	4.0	0.0	94.2	
<i>Memo: international marine bunkers</i>	-	76.7	-	-	76.7	-18.0%
<i>Memo: international aviation bunkers</i>	-	81.7	-	-	81.7	74.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	2 041.4	25.8%	24.9	24.9
Road - oil	1 727.9	31.6%	21.1	46.0
Main activity prod. elec. and heat - gas	424.5	159.5%	5.2	51.1
Manufacturing industries - gas	366.4	3.9%	4.5	55.6
Residential - gas	301.5	12.4%	3.7	59.3
Manufacturing industries - oil	270.7	0.4%	3.3	62.6
Other transport - oil	232.7	-14.1%	2.8	65.4
Other energy industries - oil	198.9	-2.1%	2.4	67.9
Non-specified other - gas	195.1	19.2%	2.4	70.2
Other energy industries - gas	171.7	24.5%	2.1	72.3
Manufacturing industries - coal/peat	148.5	-35.2%	1.8	74.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>6 555.1</i>	<i>17.8%</i>	<i>79.9</i>	<i>79.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

OECD Pacific

Figure 1. CO₂ emissions by fuel

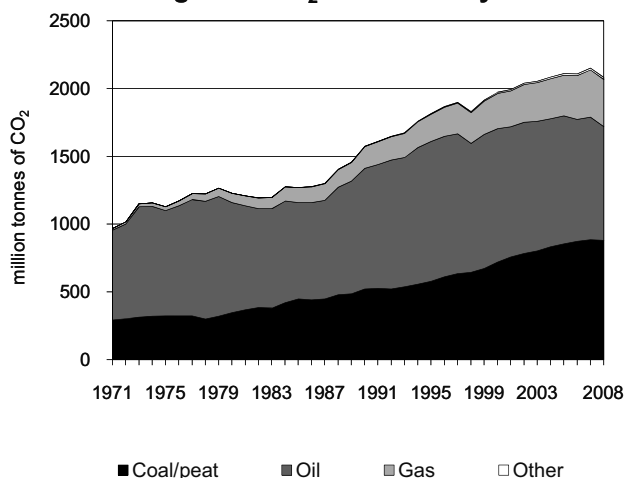


Figure 2. CO₂ emissions by sector

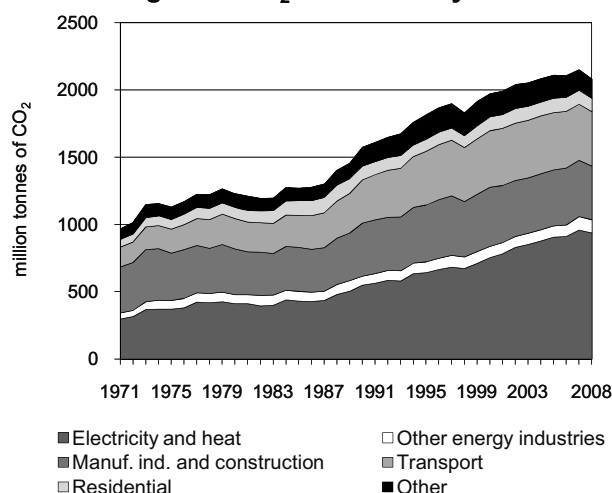


Figure 3. CO₂ emissions by sector

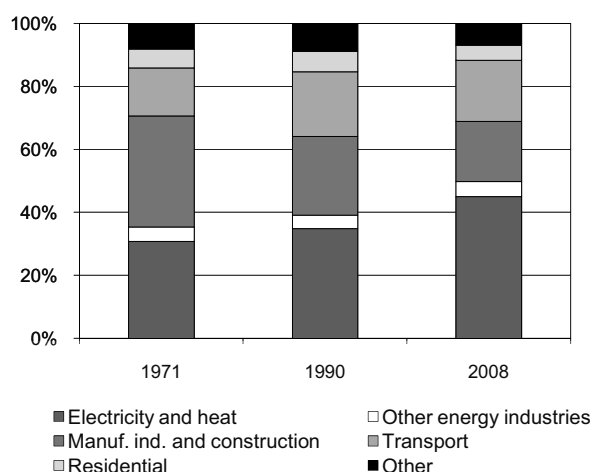


Figure 4. Reference vs Sectoral Approach

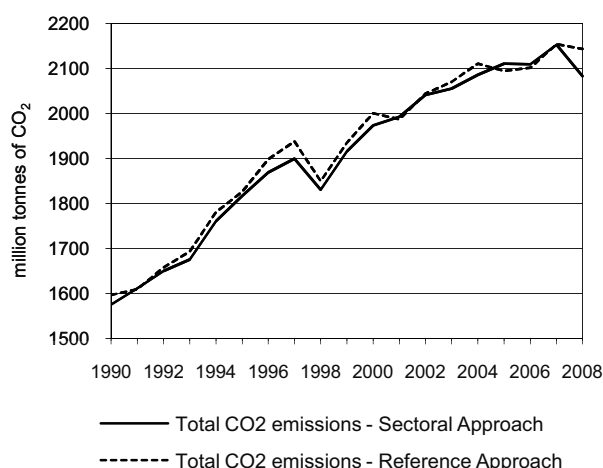


Figure 5. Electricity generation by fuel

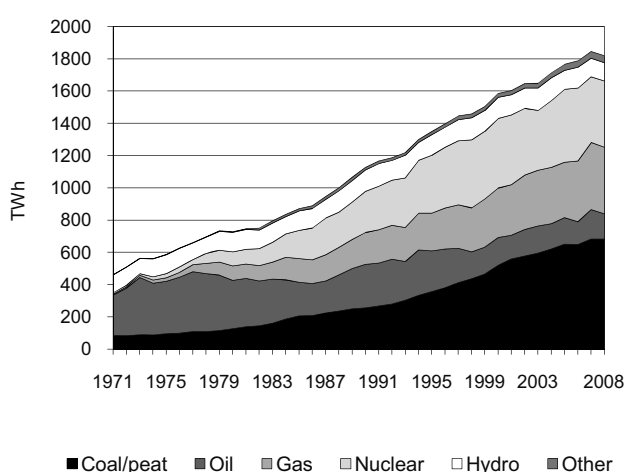
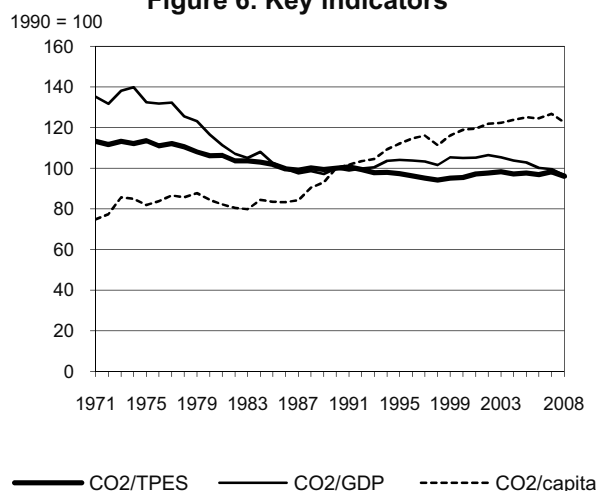


Figure 6. Key indicators



OECD Pacific

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1 575.7	1 816.9	1 973.7	2 111.0	2 109.1	2 152.3	2 083.3	32.2%
CO ₂ Reference Approach (Mt of CO ₂)	1 596.6	1 826.5	2 000.3	2 094.5	2 101.4	2 153.7	2 143.5	34.3%
TPES (PJ)	26 432	31 331	34 725	36 279	36 521	36 786	36 418	37.8%
TPES (Mtoe)	631.3	748.3	829.4	866.5	872.3	878.6	869.8	37.8%
GDP (billion 2000 USD)	4 739.0	5 252.2	5 653.1	6 179.1	6 331.8	6 509.0	6 499.7	37.2%
GDP PPP (billion 2000 USD)	3 749.7	4 253.5	4 665.4	5 192.9	5 338.1	5 503.5	5 517.0	47.1%
Population (millions)	187.1	192.6	197.1	200.6	201.1	201.6	202.1	8.0%
CO ₂ / TPES (t CO ₂ per TJ)	59.6	58.0	56.8	58.2	57.7	58.5	57.2	-4.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.33	0.35	0.35	0.34	0.33	0.33	0.32	-3.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.42	0.43	0.42	0.41	0.40	0.39	0.38	-10.1%
CO ₂ / population (t CO ₂ per capita)	8.42	9.43	10.01	10.52	10.49	10.67	10.31	22.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	880.5	840.7	348.0	14.1	2 083.3	32.2%
Main activity producer elec. and heat	573.9	73.9	171.9	1.2	820.9	75.8%
Unallocated autoproducers	78.7	22.1	13.5	3.2	117.4	43.1%
Other energy industries	36.8	47.7	13.8	-	98.4	43.9%
Manufacturing industries and construction	183.7	154.9	52.1	9.0	399.7	1.5%
Transport	0.4	401.0	2.6	-	404.0	25.1%
<i>of which: road</i>	-	360.1	1.8	-	361.8	29.0%
Other	6.9	141.1	94.0	0.7	242.8	0.4%
<i>of which: residential</i>	4.2	47.7	47.5	-	99.4	-3.0%
Reference Approach	919.8	872.8	336.9	14.1	2 143.5	34.3%
Diff. due to losses and/or transformation	9.4	4.7	- 2.0	-	12.2	
Statistical differences	29.9	27.3	- 9.1	0.0	48.1	
<i>Memo: international marine bunkers</i>	-	50.3	-	-	50.3	92.5%
<i>Memo: international aviation bunkers</i>	-	40.4	-	-	40.4	104.1%

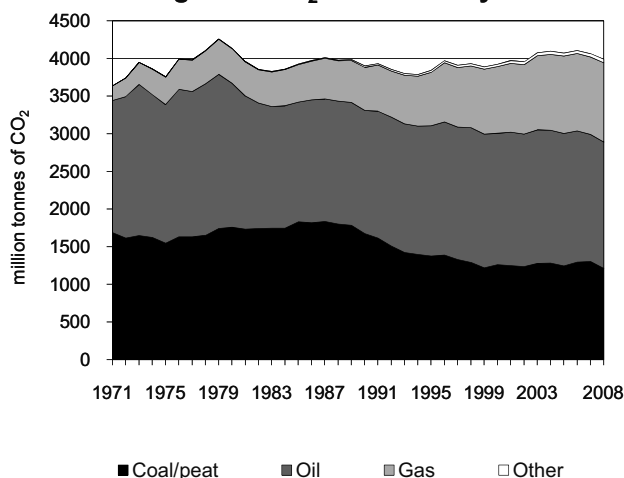
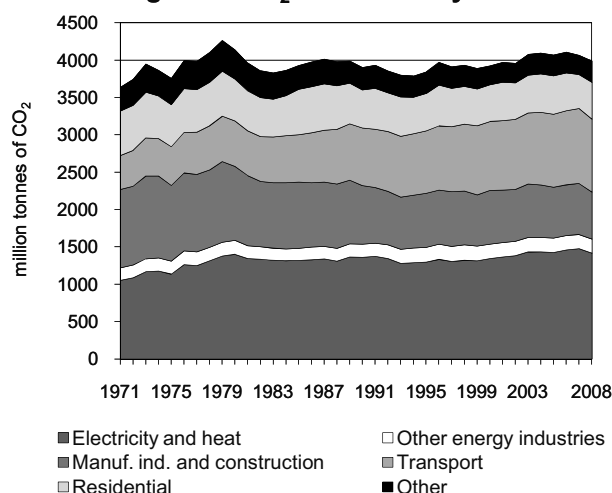
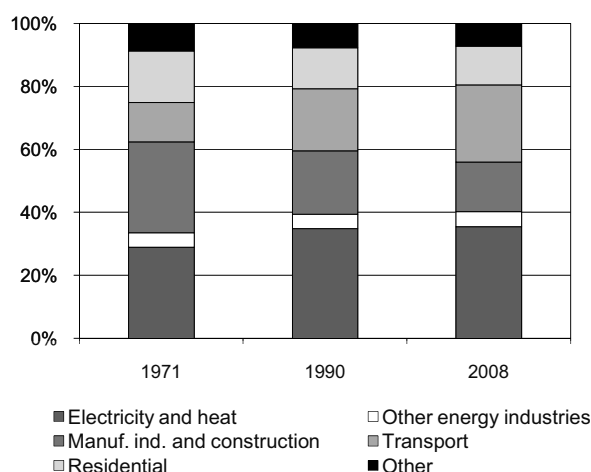
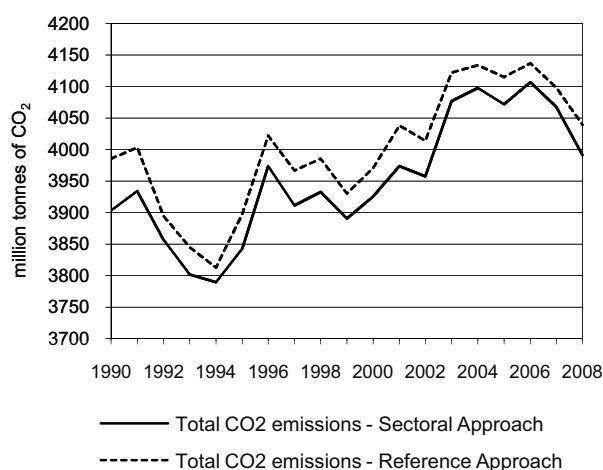
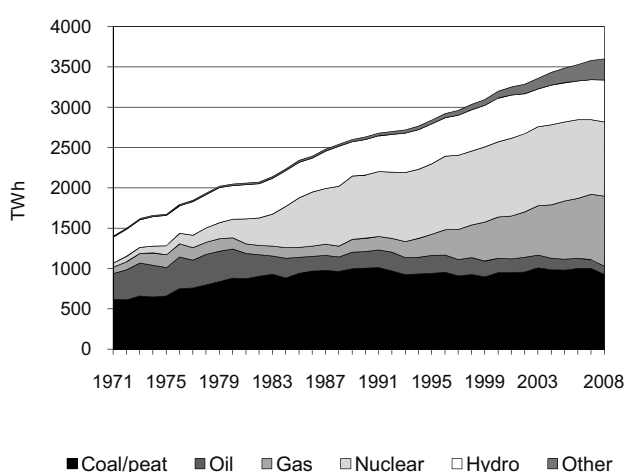
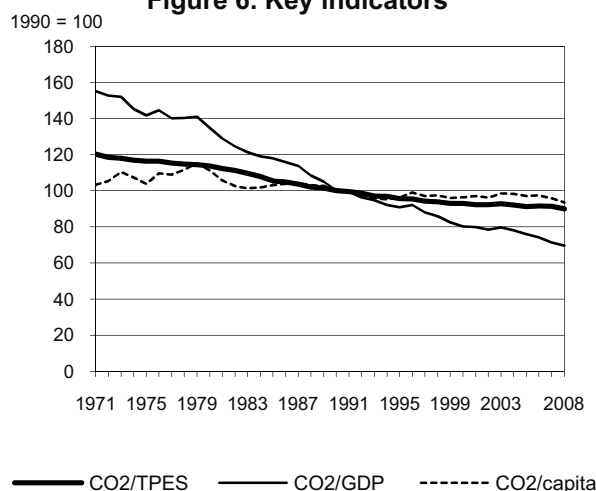
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	573.9	153.1%	22.4	22.4
Road - oil	360.1	28.5%	14.1	36.5
Manufacturing industries - coal/peat	183.7	1.2%	7.2	43.7
Main activity prod. elec. and heat - gas	171.9	86.8%	6.7	50.4
Manufacturing industries - oil	154.9	-16.3%	6.1	56.5
Non-specified other - oil	93.4	-24.2%	3.7	60.1
Unallocated autoproducers - coal/peat	78.7	47.4%	3.1	63.2
Main activity prod. elec. and heat - oil	73.9	-50.0%	2.9	66.1
Manufacturing industries - gas	52.1	107.9%	2.0	68.2
Other energy industries - oil	47.7	14.7%	1.9	70.0
Residential - oil	47.7	4.8%	1.9	71.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 083.3</i>	<i>32.2%</i>	<i>81.5</i>	<i>81.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

OECD Europe

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


OECD Europe

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3 902.9	3 842.6	3 925.5	4 071.8	4 106.8	4 067.0	3 991.2	2.3%
CO ₂ Reference Approach (Mt of CO ₂)	3 985.3	3 897.5	3 970.8	4 115.0	4 136.7	4 097.7	4 039.4	1.4%
TPES (PJ)	67 107	69 145	72 636	76 721	77 080	76 475	76 263	13.6%
TPES (Mtoe)	1 602.8	1 651.5	1 734.9	1 832.4	1 841.0	1 826.6	1 821.5	13.6%
GDP (billion 2000 USD)	7 223.2	7 831.7	9 065.5	9 929.9	10 249.7	10 543.4	10 622.0	47.1%
GDP PPP (billion 2000 USD)	8 960.1	9 703.9	11 271.2	12 434.6	12 861.6	13 253.3	13 366.9	49.2%
Population (millions)	496.5	508.5	518.3	533.5	536.5	539.9	543.3	9.4%
CO ₂ / TPES (t CO ₂ per TJ)	58.2	55.6	54.0	53.1	53.3	53.2	52.3	-10.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.54	0.49	0.43	0.41	0.40	0.39	0.38	-30.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.44	0.40	0.35	0.33	0.32	0.31	0.30	-31.5%
CO ₂ / population (t CO ₂ per capita)	7.86	7.56	7.57	7.63	7.65	7.53	7.35	-6.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1 214.5	1 676.0	1 055.5	45.2	3 991.2	2.3%
Main activity producer elec. and heat	866.0	50.3	308.3	19.7	1 244.4	8.4%
Unallocated autoproducers	70.3	26.4	61.7	14.4	172.8	-19.7%
Other energy industries	34.2	115.1	40.9	0.0	190.3	8.2%
Manufacturing industries and construction	170.5	227.5	220.8	8.7	627.6	-20.0%
Transport	0.0	972.3	5.2	-	977.5	27.0%
<i>of which: road</i>	-	906.4	1.7	-	908.1	27.4%
Other	73.3	284.3	418.6	2.4	778.7	-3.9%
<i>of which: residential</i>	55.7	152.3	284.2	0.0	492.1	-3.6%
Reference Approach	1 230.4	1 704.4	1 059.4	45.3	4 039.4	1.4%
Diff. due to losses and/or transformation	16.8	12.2	7.5	0.0	36.5	
Statistical differences	- 0.9	16.2	- 3.6	0.0	11.7	
<i>Memo: international marine bunkers</i>	-	167.7	-	-	167.7	51.6%
<i>Memo: international aviation bunkers</i>	-	142.1	-	-	142.1	96.5%

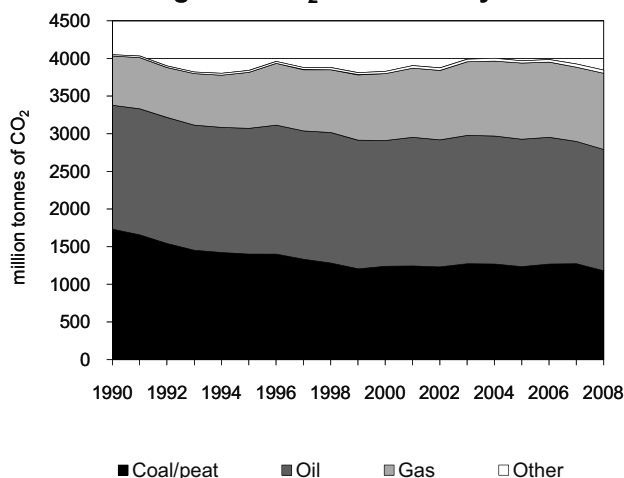
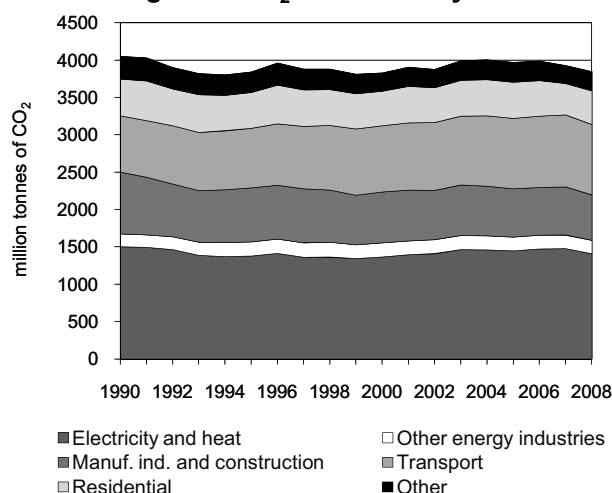
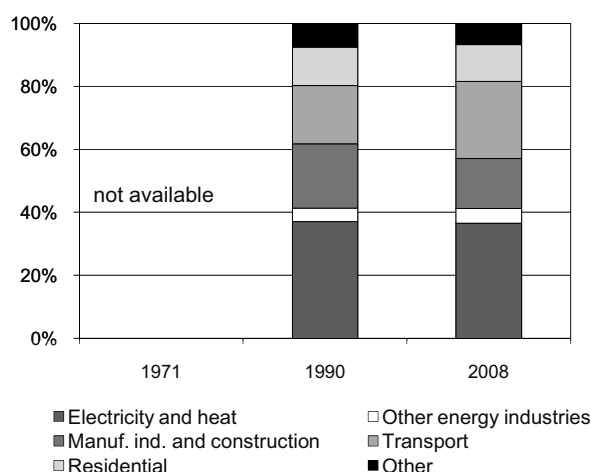
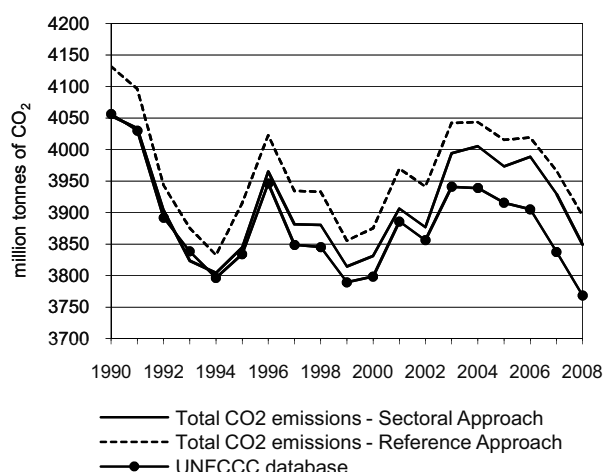
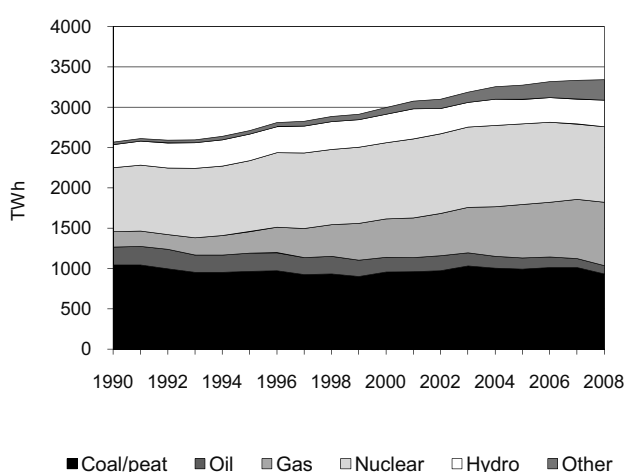
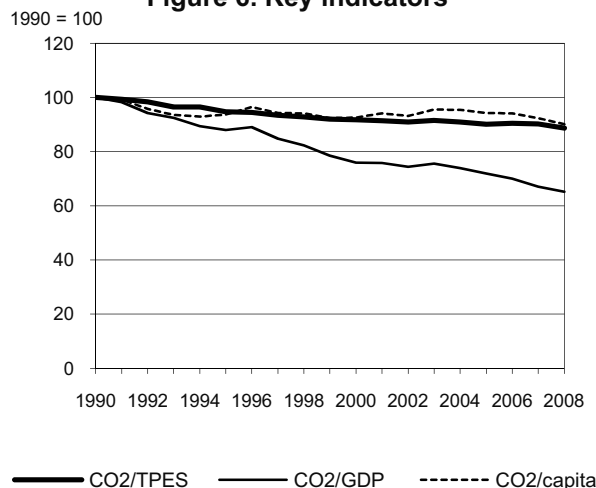
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	906.4	27.2%	17.5	17.5
Main activity prod. elec. and heat - coal/peat	866.0	-8.5%	16.7	34.2
Main activity prod. elec. and heat - gas	308.3	330.6%	5.9	40.1
Residential - gas	284.2	64.4%	5.5	45.6
Manufacturing industries - oil	227.5	-9.1%	4.4	50.0
Manufacturing industries - gas	220.8	9.5%	4.3	54.3
Manufacturing industries - coal/peat	170.5	-48.0%	3.3	57.5
Residential - oil	152.3	-22.9%	2.9	60.5
Non-specified other - gas	134.4	64.1%	2.6	63.1
Non-specified other - oil	132.1	-14.3%	2.5	65.6
Other energy industries - oil	115.1	1.1%	2.2	67.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 991.2</i>	<i>2.3%</i>	<i>77.0</i>	<i>77.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

European Union - 27

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


European Union - 27

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	4 053.5	3 844.7	3 831.0	3 973.2	3 988.2	3 929.6	3 849.5	-5.0%
CO ₂ Reference Approach (Mt of CO ₂)	4 131.8	3 915.1	3 875.1	4 015.2	4 018.9	3 966.2	3 894.8	-5.7%
TPES (PJ)	68 457	68 528	70 530	74 472	74 465	73 607	73 300	7.1%
TPES (Mtoe)	1 635.1	1 636.8	1 684.6	1 778.7	1 778.6	1 758.1	1 750.7	7.1%
GDP (billion 2000 USD)	6 805.3	7 339.6	8 479.7	9 272.2	9 565.1	9 836.5	9 910.3	45.6%
GDP PPP (billion 2000 USD)	8 563.9	9 160.4	10 583.0	11 659.0	12 052.1	12 420.7	12 543.0	46.5%
Population (millions)	472.9	478.7	482.9	492.1	494.1	496.4	498.7	5.5%
CO ₂ / TPES (t CO ₂ per TJ)	59.2	56.1	54.3	53.4	53.6	53.4	52.5	-11.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.60	0.52	0.45	0.43	0.42	0.40	0.39	-34.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.47	0.42	0.36	0.34	0.33	0.32	0.31	-35.2%
CO ₂ / population (t CO ₂ per capita)	8.57	8.03	7.93	8.07	8.07	7.92	7.72	-10.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1 180.9	1 612.8	1 013.8	42.0	3 849.5	-5.0%
Main activity producer elec. and heat	882.5	53.5	289.7	19.4	1 245.2	-2.3%
Unallocated autoproducers	67.8	25.6	57.9	12.9	164.2	-28.6%
Other energy industries	31.4	115.3	32.4	0.1	179.1	4.0%
Manufacturing industries and construction	150.8	224.5	227.0	8.1	610.4	-26.3%
Transport	0.0	937.2	5.5	-	942.7	25.7%
<i>of which: road</i>	-	878.2	1.7	-	879.9	26.5%
Other	48.4	256.7	401.3	1.5	708.0	-11.4%
<i>of which: residential</i>	37.1	141.1	272.7	0.0	451.0	-8.7%
Reference Approach	1 199.4	1 634.9	1 018.5	42.1	3 894.8	-5.7%
Diff. due to losses and/or transformation	18.3	10.8	8.5	0.0	37.7	
Statistical differences	0.2	11.2	-3.9	0.1	7.6	
<i>Memo: international marine bunkers</i>	-	170.1	-	-	170.1	52.6%
<i>Memo: international aviation bunkers</i>	-	135.5	-	-	135.5	92.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	882.5	-12.2%	17.6	17.6
Road - oil	878.2	26.3%	17.5	35.1
Main activity prod. elec. and heat - gas	289.7	178.9%	5.8	40.8
Residential - gas	272.7	53.6%	5.4	46.3
Manufacturing industries - gas	227.0	-9.1%	4.5	50.8
Manufacturing industries - oil	224.5	-10.4%	4.5	55.3
Manufacturing industries - coal/peat	150.8	-53.5%	3.0	58.3
Residential - oil	141.1	-21.8%	2.8	61.1
Non-specified other - gas	128.6	52.0%	2.6	63.6
Non-specified other - oil	115.6	-24.4%	2.3	65.9
Other energy industries - oil	115.3	-0.6%	2.3	68.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 849.5</i>	<i>-5.0%</i>	<i>76.7</i>	<i>76.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Africa

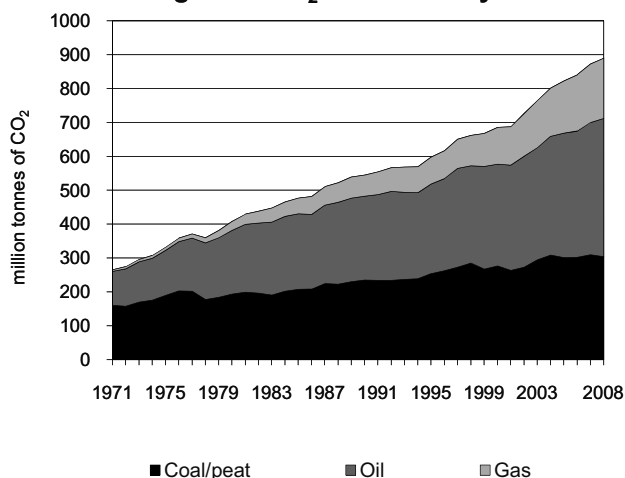
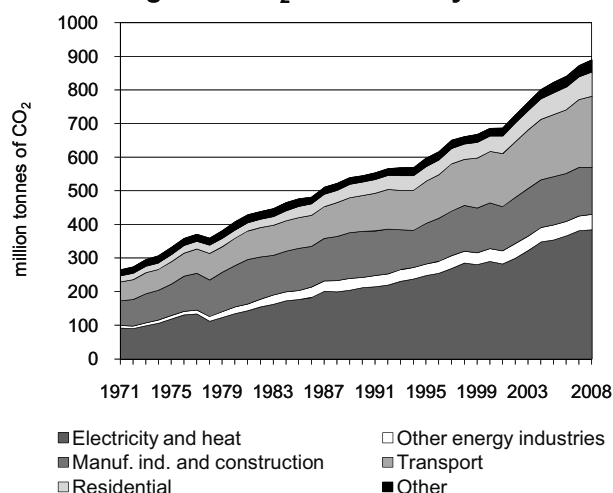
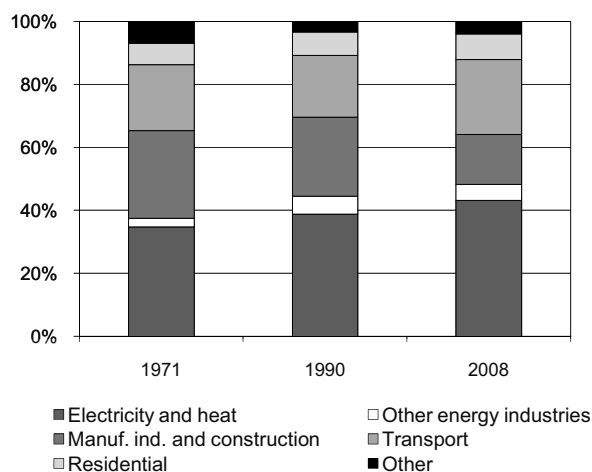
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

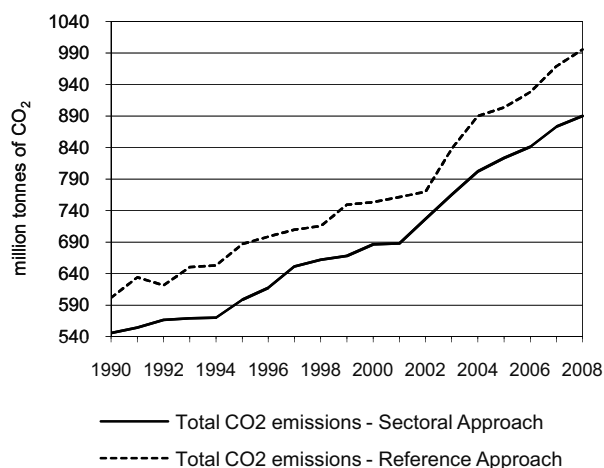


Figure 5. Electricity generation by fuel

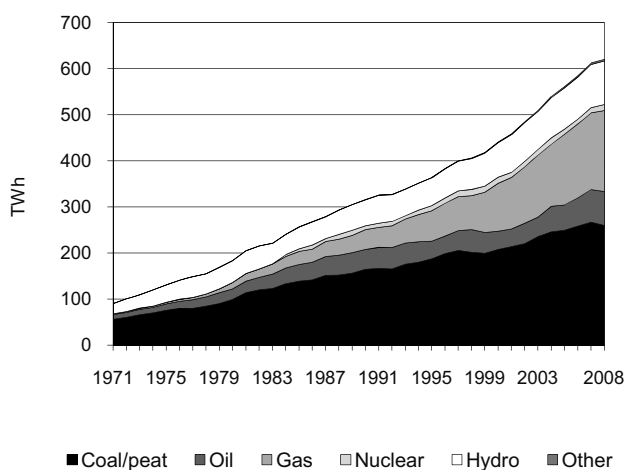
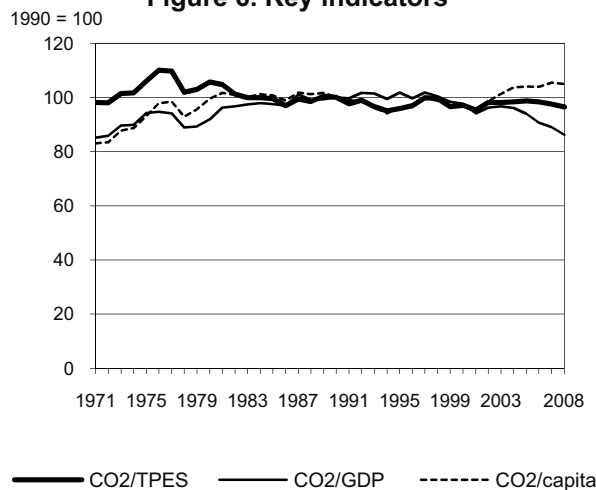


Figure 6. Key indicators



Africa

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	545.6	598.2	686.3	823.4	841.3	873.2	889.9	63.1%
CO ₂ Reference Approach (Mt of CO ₂)	601.4	687.0	753.2	903.5	927.9	969.3	995.6	65.5%
TPES (PJ)	16 224	18 542	21 032	24 810	25 441	26 617	27 442	69.1%
TPES (Mtoe)	387.5	442.9	502.3	592.6	607.7	635.7	655.4	69.1%
GDP (billion 2000 USD)	462.8	498.4	596.5	743.3	786.5	832.5	876.2	89.3%
GDP PPP (billion 2000 USD)	1 340.6	1 431.5	1 710.2	2 122.0	2 244.6	2 373.7	2 499.1	86.4%
Population (millions)	633.6	721.4	817.2	918.8	940.4	961.9	984.3	55.3%
CO ₂ / TPES (t CO ₂ per TJ)	33.6	32.3	32.6	33.2	33.1	32.8	32.4	-3.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.18	1.20	1.15	1.11	1.07	1.05	1.02	-13.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.41	0.42	0.40	0.39	0.37	0.37	0.36	-12.5%
CO ₂ / population (t CO ₂ per capita)	0.86	0.83	0.84	0.90	0.89	0.91	0.90	5.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	304.3	407.8	177.8	-	889.9	63.1%
Main activity producer elec. and heat	222.4	54.0	92.1	-	368.5	84.7%
Unallocated autoproducers	10.1	5.2	0.7	-	15.9	27.9%
Other energy industries	0.1	15.6	29.9	-	45.6	46.7%
Manufacturing industries and construction	49.3	51.0	40.0	-	140.4	2.7%
Transport	0.0	208.5	3.1	-	211.6	98.0%
<i>of which: road</i>	-	196.4	1.0	-	197.4	94.3%
Other	22.6	73.4	12.0	-	107.9	82.8%
<i>of which: residential</i>	14.2	46.9	11.3	-	72.4	79.0%
Reference Approach	404.3	400.4	190.9	-	995.6	65.5%
Diff. due to losses and/or transformation	87.9	- 12.5	13.1	-	88.4	
Statistical differences	12.0	5.2	0.1	-	17.3	
<i>Memo: international marine bunkers</i>	-	17.8	-	-	17.8	8.0%
<i>Memo: international aviation bunkers</i>	-	20.4	-	-	20.4	78.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	222.4	55.0%	8.9	8.9
Road - oil	196.4	93.3%	7.9	16.8
Main activity prod. elec. and heat - gas	92.1	269.0%	3.7	20.5
Main activity prod. elec. and heat - oil	54.0	73.7%	2.2	22.7
Manufacturing industries - oil	51.0	-0.8%	2.1	24.8
Manufacturing industries - coal/peat	49.3	-30.1%	2.0	26.7
Residential - oil	46.9	48.4%	1.9	28.6
Manufacturing industries - gas	40.0	172.5%	1.6	30.2
Other energy industries - gas	29.9	55.2%	1.2	31.4
Non-specified other - oil	26.5	102.6%	1.1	32.5
Other energy industries - oil	15.6	34.6%	0.6	33.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>889.9</i>	<i>63.1%</i>	<i>35.8</i>	<i>35.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Middle East

Figure 1. CO₂ emissions by fuel

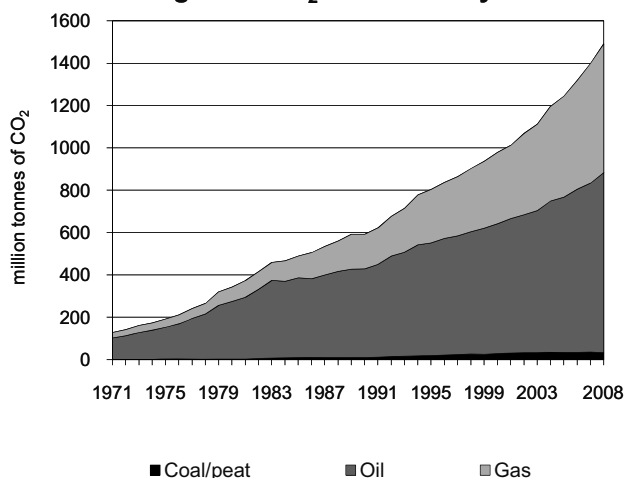


Figure 2. CO₂ emissions by sector

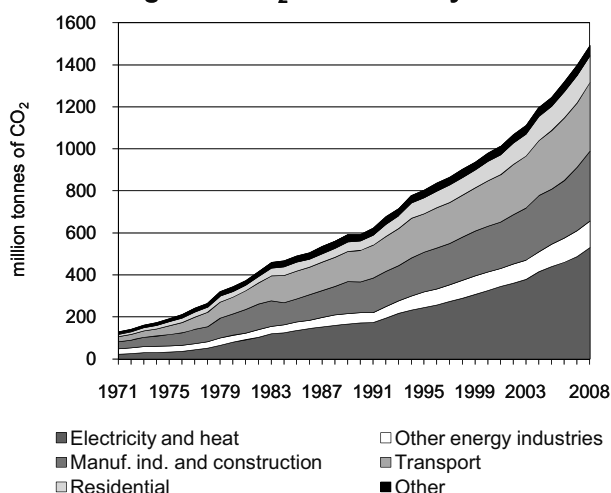


Figure 3. CO₂ emissions by sector

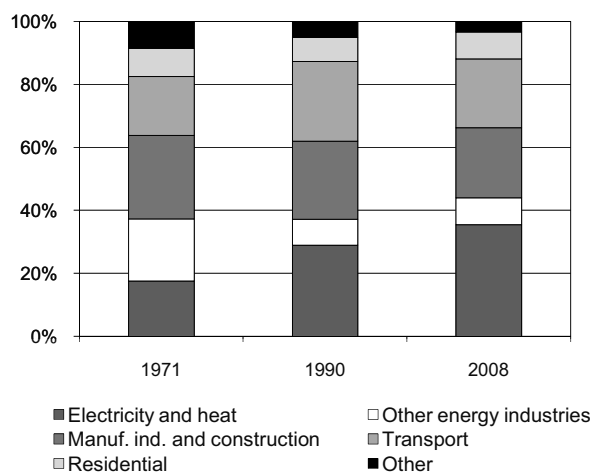


Figure 4. Reference vs Sectoral Approach

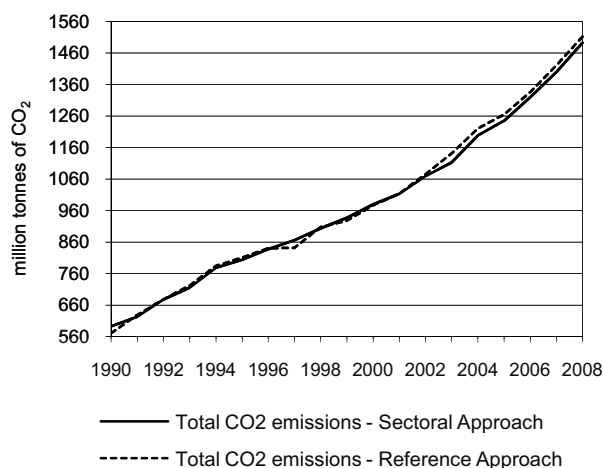


Figure 5. Electricity generation by fuel

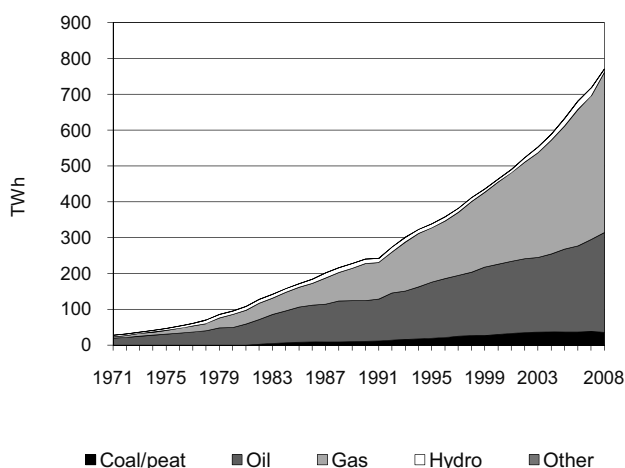
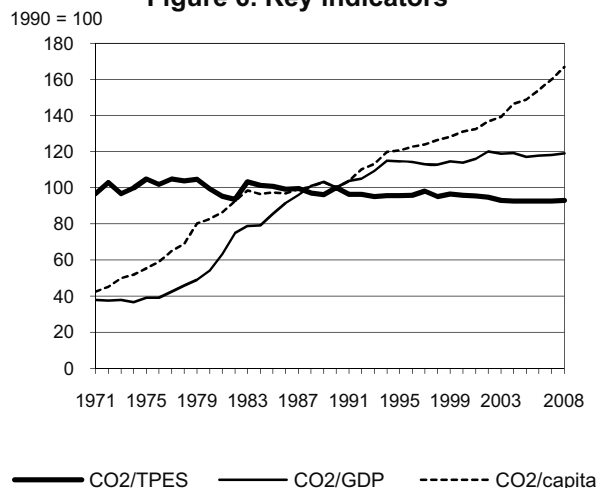


Figure 6. Key indicators



Middle East

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	592.5	803.8	979.9	1 245.0	1 319.2	1 399.6	1 492.3	151.8%
CO ₂ Reference Approach (Mt of CO ₂)	569.9	811.2	976.3	1 264.9	1 336.1	1 421.0	1 511.6	165.2%
TPES (PJ)	9 175	13 029	15 847	20 821	22 044	23 386	24 855	170.9%
TPES (Mtoe)	219.2	311.2	378.5	497.3	526.5	558.6	593.7	170.9%
GDP (billion 2000 USD)	446.5	528.5	648.3	801.9	844.6	893.3	945.0	111.6%
GDP PPP (billion 2000 USD)	769.5	910.7	1 107.8	1 382.5	1 456.0	1 543.8	1 629.7	111.8%
Population (millions)	131.6	147.9	165.9	185.7	190.0	194.2	198.5	50.9%
CO ₂ / TPES (t CO ₂ per TJ)	64.6	61.7	61.8	59.8	59.8	59.8	60.0	-7.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.33	1.52	1.51	1.55	1.56	1.57	1.58	19.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.77	0.88	0.88	0.90	0.91	0.91	0.92	18.9%
CO ₂ / population (t CO ₂ per capita)	4.50	5.44	5.91	6.70	6.94	7.21	7.52	66.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	33.8	850.2	608.2	-	1 492.3	151.8%
Main activity producer elec. and heat	29.5	210.7	246.5	-	486.7	238.7%
Unallocated autoproducers	1.4	8.3	33.5	-	43.2	53.9%
Other energy industries	0.7	48.8	77.0	-	126.6	160.4%
Manufacturing industries and construction	2.0	170.9	159.4	-	332.3	125.8%
Transport	-	323.0	3.6	-	326.6	118.2%
<i>of which: road</i>	-	320.5	3.6	-	324.2	119.6%
Other	0.2	88.5	88.2	-	176.9	134.9%
<i>of which: residential</i>	0.0	50.9	76.4	-	127.3	182.9%
Reference Approach	37.1	848.7	625.7	-	1 511.6	165.2%
Diff. due to losses and/or transformation	0.5	1.7	6.0	-	8.2	
Statistical differences	2.8	- 3.1	11.4	-	11.2	
<i>Memo: international marine bunkers</i>	-	64.5	-	-	64.5	122.9%
<i>Memo: international aviation bunkers</i>	-	35.4	-	-	35.4	30.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	320.5	117.1%	16.5	16.5
Main activity prod. elec. and heat - gas	246.5	370.4%	12.7	29.1
Main activity prod. elec. and heat - oil	210.7	155.6%	10.8	39.9
Manufacturing industries - oil	170.9	99.9%	8.8	48.7
Manufacturing industries - gas	159.4	167.8%	8.2	56.9
Other energy industries - gas	77.0	259.2%	4.0	60.8
Residential - gas	76.4	+	3.9	64.8
Residential - oil	50.9	30.8%	2.6	67.4
Other energy industries - oil	48.8	79.7%	2.5	69.9
Non-specified other - oil	37.7	32.6%	1.9	71.8
Unallocated autoproducers - gas	33.5	57.0%	1.7	73.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 492.3</i>	<i>151.8%</i>	<i>76.6</i>	<i>76.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Non-OECD Europe

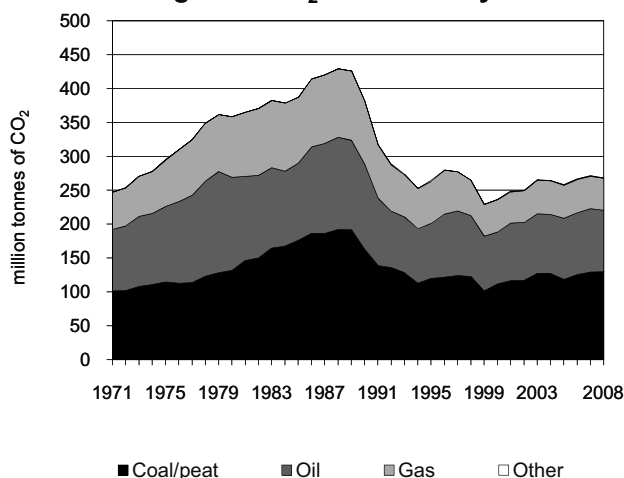
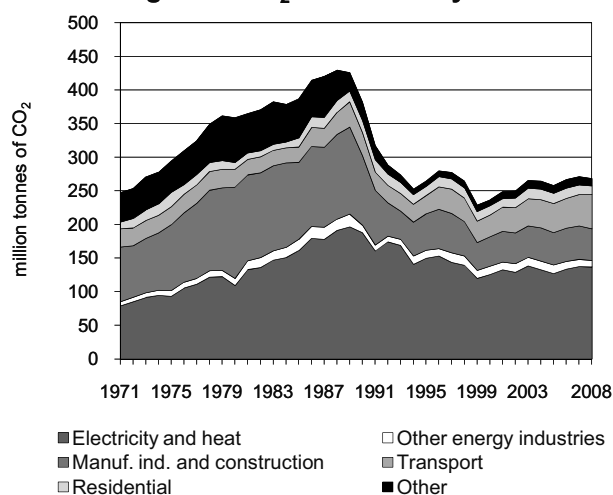
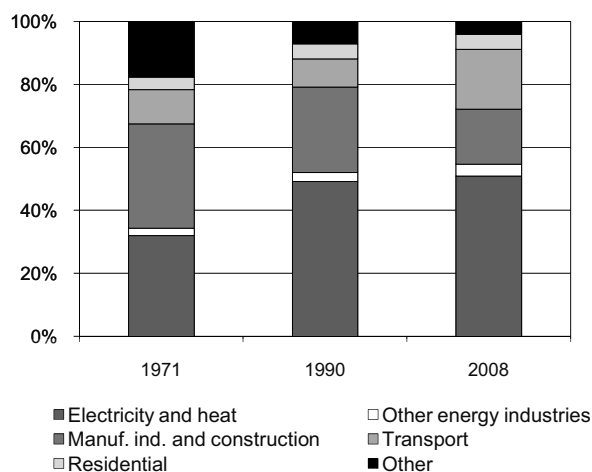
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

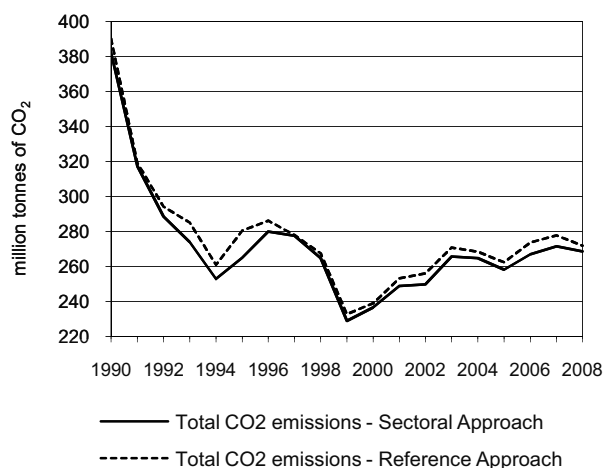


Figure 5. Electricity generation by fuel

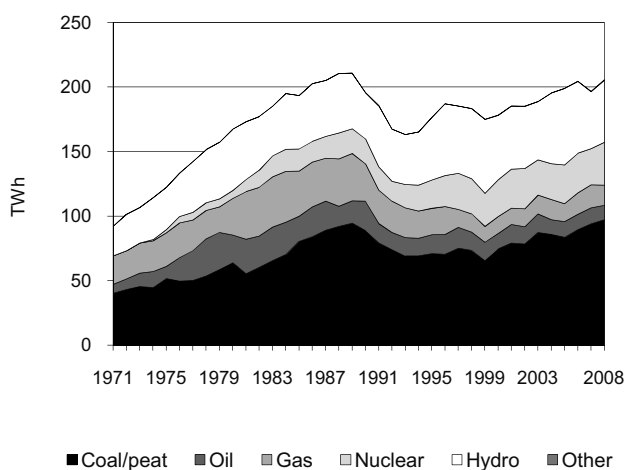
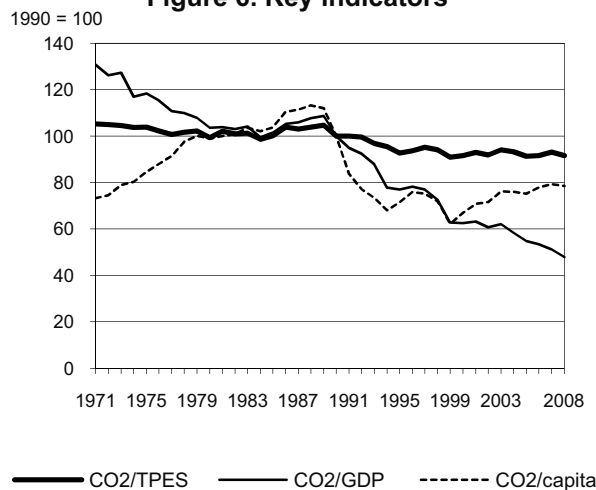


Figure 6. Key indicators



Non-OECD Europe

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	382.2	264.9	236.6	258.3	266.9	271.5	268.6	-29.7%
CO ₂ Reference Approach (Mt of CO ₂)	390.2	280.6	239.0	262.4	273.8	277.7	271.9	-30.3%
TPES (PJ)	5 826	4 354	3 940	4 308	4 438	4 444	4 469	-23.3%
TPES (Mtoe)	139.2	104.0	94.1	102.9	106.0	106.1	106.7	-23.3%
GDP (billion 2000 USD)	128.8	115.9	127.6	158.7	168.4	178.5	188.7	46.5%
GDP PPP (billion 2000 USD)	380.9	340.7	367.3	461.8	491.4	521.5	554.6	45.6%
Population (millions)	59.4	57.6	55.0	53.4	53.3	53.2	53.1	-10.6%
CO ₂ / TPES (t CO ₂ per TJ)	65.6	60.8	60.1	60.0	60.1	61.1	60.1	-8.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.97	2.28	1.86	1.63	1.59	1.52	1.42	-52.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.00	0.78	0.64	0.56	0.54	0.52	0.48	-51.7%
CO ₂ / population (t CO ₂ per capita)	6.43	4.60	4.30	4.84	5.01	5.10	5.05	-21.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	130.1	90.6	47.1	0.7	268.6	-29.7%
Main activity producer elec. and heat	108.3	9.4	13.1	0.0	130.8	-22.9%
Unallocated autoproducers	3.1	1.6	1.3	0.0	6.0	-66.8%
Other energy industries	0.8	6.8	2.3	0.1	10.0	-11.3%
Manufacturing industries and construction	13.6	13.3	19.4	0.6	47.0	-54.6%
Transport	0.0	50.0	0.8	-	50.8	48.5%
<i>of which: road</i>	-	47.0	0.1	-	47.1	48.3%
Other	4.3	9.5	10.1	-	23.9	-47.3%
<i>of which: residential</i>	2.8	3.3	7.0	-	13.0	-28.1%
Reference Approach	133.0	90.0	48.1	0.8	271.9	-30.3%
Diff. due to losses and/or transformation	2.4	- 1.2	1.4	-	2.6	
Statistical differences	0.4	0.6	- 0.4	0.1	0.7	
<i>Memo: international marine bunkers</i>	-	8.5	-	-	8.5	328.7%
<i>Memo: international aviation bunkers</i>	-	3.0	-	-	3.0	-1.4%

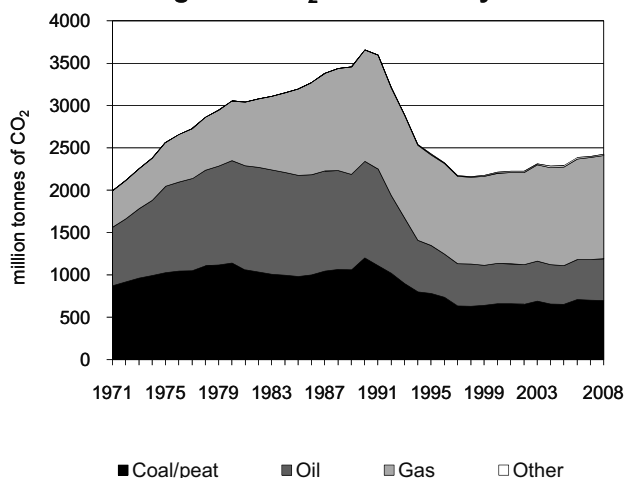
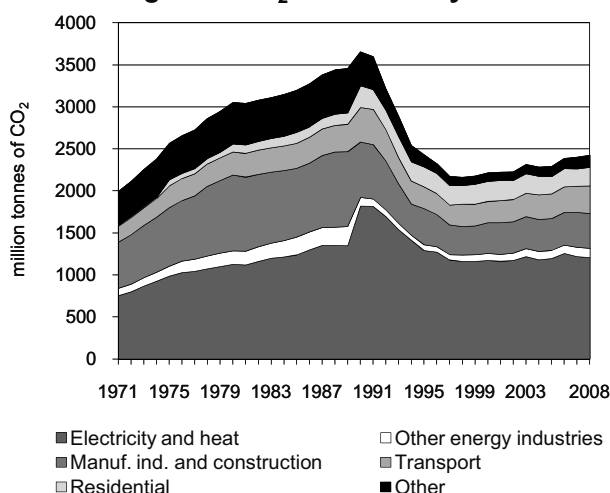
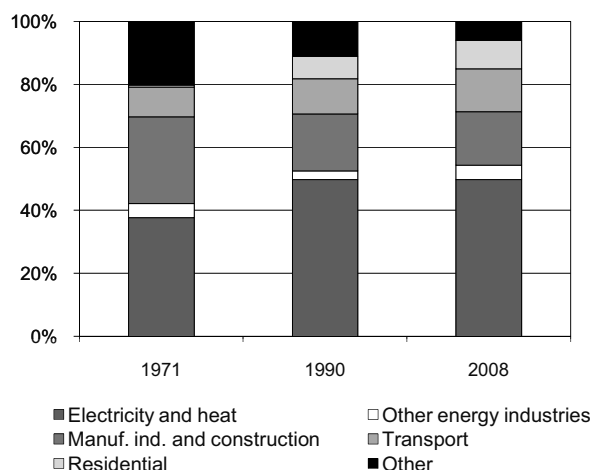
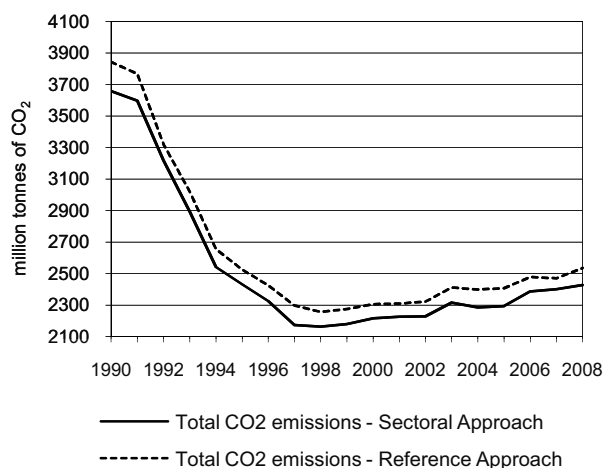
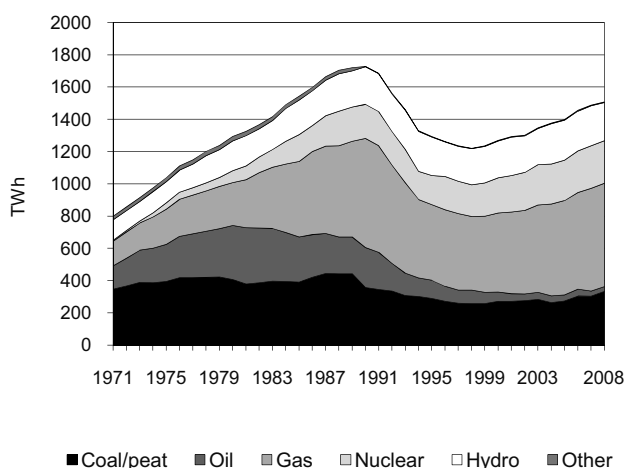
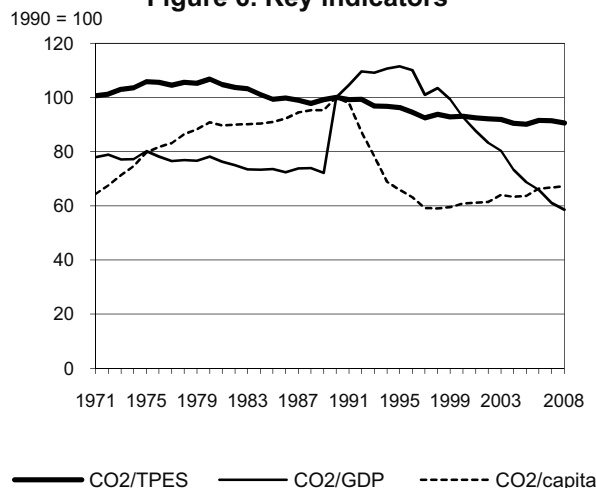
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	108.3	-1.5%	27.2	27.2
Road - oil	47.0	48.0%	11.8	39.0
Manufacturing industries - gas	19.4	-61.9%	4.9	43.9
Manufacturing industries - coal/peat	13.6	-49.3%	3.4	47.3
Manufacturing industries - oil	13.3	-48.3%	3.4	50.7
Main activity prod. elec. and heat - gas	13.1	-54.9%	3.3	54.0
Main activity prod. elec. and heat - oil	9.4	-69.4%	2.4	56.3
Residential - gas	7.0	20.1%	1.8	58.1
Other energy industries - oil	6.8	-29.7%	1.7	59.8
Non-specified other - oil	6.2	-48.1%	1.6	61.4
Residential - oil	3.3	-25.4%	0.8	62.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>268.6</i>	<i>-29.7%</i>	<i>67.5</i>	<i>67.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Former Soviet Union

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Former Soviet Union *

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3 657.1	2 430.6	2 216.1	2 292.5	2 387.4	2 401.6	2 426.5	-33.7%
CO ₂ Reference Approach (Mt of CO ₂)	3 843.6	2 524.7	2 305.4	2 406.4	2 478.1	2 469.6	2 535.0	-34.0%
TPES (PJ)	59 330	40 994	38 626	41 305	42 341	42 630	43 467	-26.7%
TPES (Mtoe)	1 417.1	979.1	922.6	986.5	1 011.3	1 018.2	1 038.2	-26.7%
GDP (billion 2000 USD)	577.0	344.0	377.4	526.3	571.5	621.4	653.5	13.3%
GDP PPP (billion 2000 USD)	2 376.3	1 370.0	1 479.4	2 067.9	2 243.6	2 437.9	2 563.7	7.9%
Population (millions)	288.8	291.1	288.1	284.6	284.2	284.3	284.6	-1.5%
CO ₂ / TPES (t CO ₂ per TJ)	61.6	59.3	57.4	55.5	56.4	56.3	55.8	-9.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	6.34	7.06	5.87	4.36	4.18	3.87	3.71	-41.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.54	1.77	1.50	1.11	1.06	0.99	0.95	-38.5%
CO ₂ / population (t CO ₂ per capita)	12.66	8.35	7.69	8.06	8.40	8.45	8.53	-32.7%

Ratios are based on the Sectoral Approach.

* Data for 1990 and 1991 have been estimated for the individual countries of Former Soviet Union. This may cause breaks in the regional time series.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach	701.2	491.5	1 218.7	15.1	2 426.5	-33.7%
Main activity producer elec. and heat	385.4	21.1	448.0	0.1	854.6	-40.6%
Unallocated autoproducers	109.3	29.4	200.8	13.2	352.8	-7.2%
Other energy industries	9.3	49.3	51.9	0.6	111.1	8.8%
Manufacturing industries and construction	161.8	77.7	172.4	1.0	413.0	-37.5%
Transport	0.2	234.7	94.8	-	329.7	-19.6%
<i>of which: road</i>	-	199.6	1.0	-	200.6	-20.5%
Other	35.2	79.2	250.9	0.2	365.4	-45.0%
<i>of which: residential</i>	18.5	29.4	171.1	-	219.0	-15.7%
Reference Approach	755.6	515.8	1 248.4	15.1	2 535.0	-34.0%
Diff. due to losses and/or transformation	20.2	24.3	26.0	-	70.5	
Statistical differences	34.2	0.1	3.7	- 0.0	38.1	
<i>Memo: international marine bunkers</i>	-	1.7	-	-	1.7	-79.1%
<i>Memo: international aviation bunkers</i>	-	22.5	-	-	22.5	-41.2%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - gas	448.0	-15.5%	12.0	12.0
Main activity prod. elec. and heat - coal/peat	385.4	-37.2%	10.3	22.3
Unallocated autoproducers - gas	200.8	-8.6%	5.4	27.7
Road - oil	199.6	-20.0%	5.3	33.0
Manufacturing industries - gas	172.4	-8.6%	4.6	37.7
Residential - gas	171.1	19.2%	4.6	42.2
Manufacturing industries - coal/peat	161.8	-41.1%	4.3	46.6
Unallocated autoproducers - coal/peat	109.3	21.5%	2.9	49.5
Other transport - gas	93.8	21.0%	2.5	52.0
Non-specified other - gas	79.8	-32.5%	2.1	54.2
Manufacturing industries - oil	77.7	-60.7%	2.1	56.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>2 426.5</i>	<i>-33.7%</i>	<i>65.0</i>	<i>65.0</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Latin America

Figure 1. CO₂ emissions by fuel

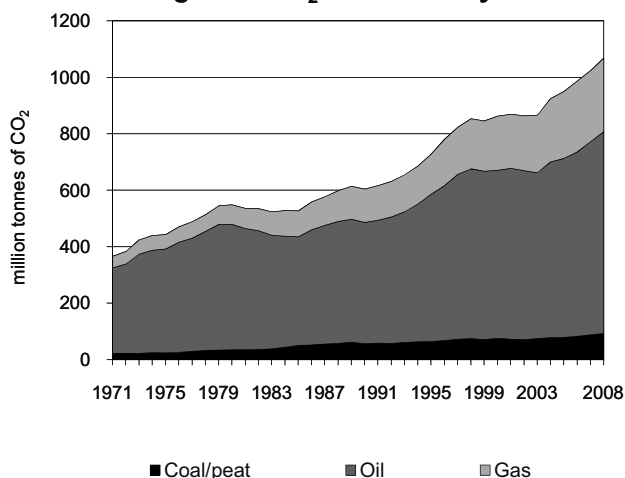


Figure 2. CO₂ emissions by sector

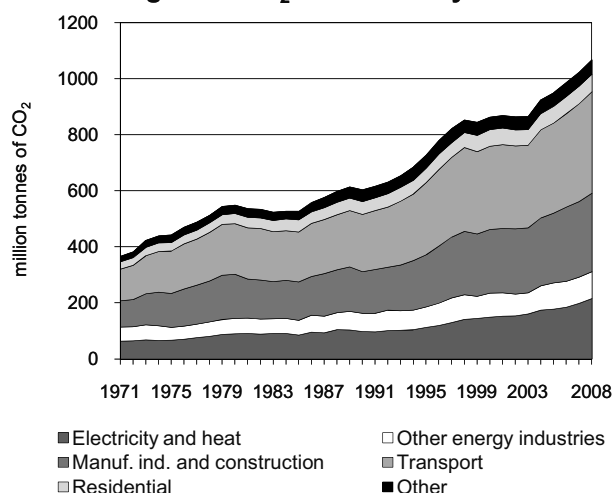


Figure 3. CO₂ emissions by sector

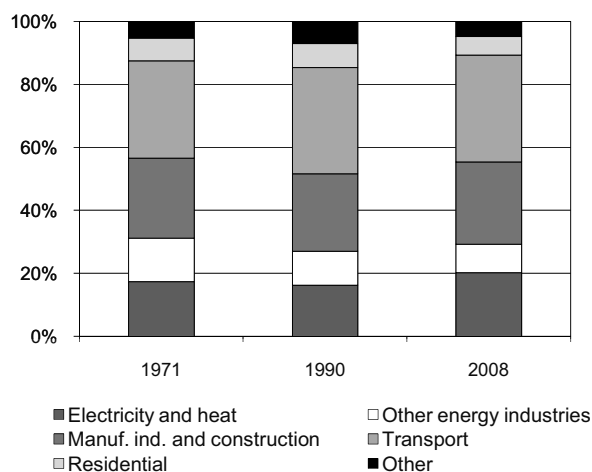


Figure 4. Reference vs Sectoral Approach

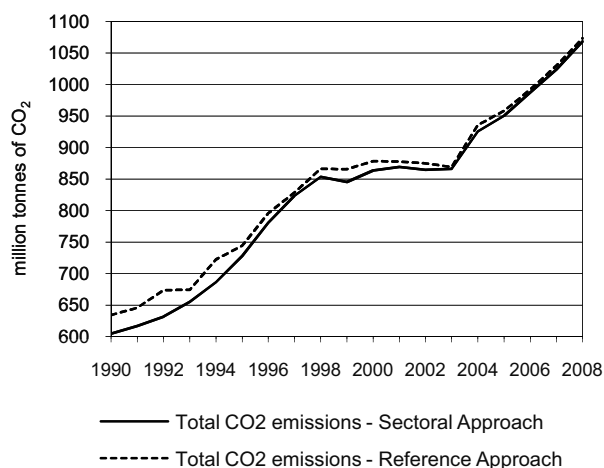


Figure 5. Electricity generation by fuel

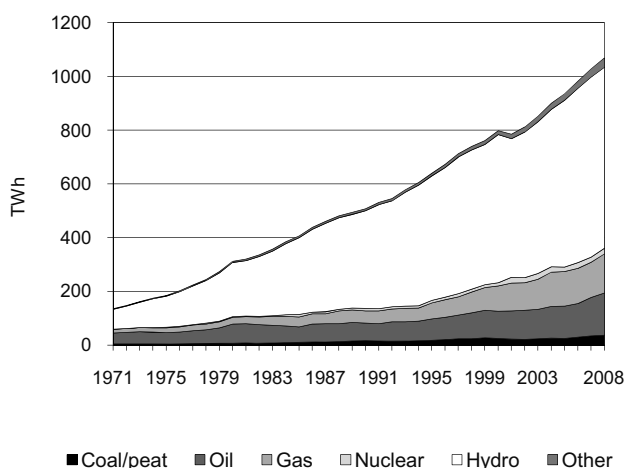
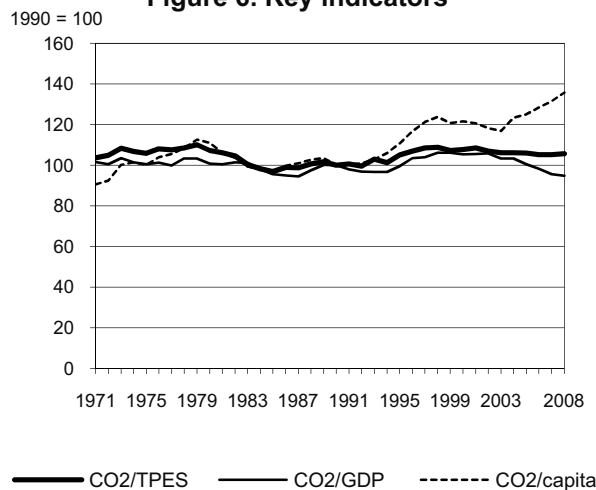


Figure 6. Key indicators



Latin America

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	604.6	728.2	863.4	950.3	987.2	1 023.8	1 068.2	76.7%
CO ₂ Reference Approach (Mt of CO ₂)	634.1	744.3	878.4	958.0	992.1	1 030.1	1 073.4	69.3%
TPES (PJ)	14 399	16 522	19 107	21 346	22 349	23 192	24 082	67.2%
TPES (Mtoe)	343.9	394.6	456.4	509.8	533.8	553.9	575.2	67.2%
GDP (billion 2000 USD)	1 101.4	1 334.1	1 493.3	1 724.0	1 829.4	1 951.6	2 053.3	86.4%
GDP PPP (billion 2000 USD)	2 114.6	2 548.9	2 856.4	3 315.4	3 514.3	3 746.1	3 936.7	86.2%
Population (millions)	354.8	386.3	417.1	446.2	451.7	456.9	462.0	30.2%
CO ₂ / TPES (t CO ₂ per TJ)	42.0	44.1	45.2	44.5	44.2	44.1	44.4	5.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.55	0.58	0.55	0.54	0.52	0.52	-5.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.29	0.29	0.30	0.29	0.28	0.27	0.27	-5.1%
CO ₂ / population (t CO ₂ per capita)	1.70	1.88	2.07	2.13	2.19	2.24	2.31	35.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	92.9	714.4	260.9	-	1 068.2	76.7%
Main activity producer elec. and heat	28.4	87.6	63.2	-	179.1	132.2%
Unallocated autoproducers	12.5	14.7	9.6	-	36.8	72.2%
Other energy industries	3.9	41.9	50.6	-	96.4	47.6%
Manufacturing industries and construction	47.4	135.1	97.1	-	279.6	88.3%
Transport	-	348.3	13.5	-	361.8	77.8%
<i>of which: road</i>	-	314.8	12.0	-	326.8	78.7%
Other	0.8	86.8	26.9	-	114.5	29.0%
<i>of which: residential</i>	0.5	39.7	22.7	-	63.0	35.2%
Reference Approach	94.9	715.3	263.2	-	1 073.4	69.3%
Diff. due to losses and/or transformation	0.9	9.8	1.4	-	12.2	
Statistical differences	1.1	- 8.9	0.8	-	- 7.0	
<i>Memo: international marine bunkers</i>	-	34.6	-	-	34.6	129.0%
<i>Memo: international aviation bunkers</i>	-	17.6	-	-	17.6	103.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	314.8	72.6%	12.3	12.3
Manufacturing industries - oil	135.1	74.4%	5.3	17.5
Manufacturing industries - gas	97.1	138.0%	3.8	21.3
Main activity prod. elec. and heat - oil	87.6	132.9%	3.4	24.7
Main activity prod. elec. and heat - gas	63.2	142.4%	2.5	27.2
Other energy industries - gas	50.6	62.9%	2.0	29.2
Manufacturing industries - coal/peat	47.4	56.8%	1.8	31.0
Non-specified other - oil	47.1	26.4%	1.8	32.8
Other energy industries - oil	41.9	37.1%	1.6	34.5
Residential - oil	39.7	10.8%	1.5	36.0
Other transport - oil	33.4	62.4%	1.3	37.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 068.2</i>	<i>76.7%</i>	<i>41.6</i>	<i>41.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Asia (excluding China)

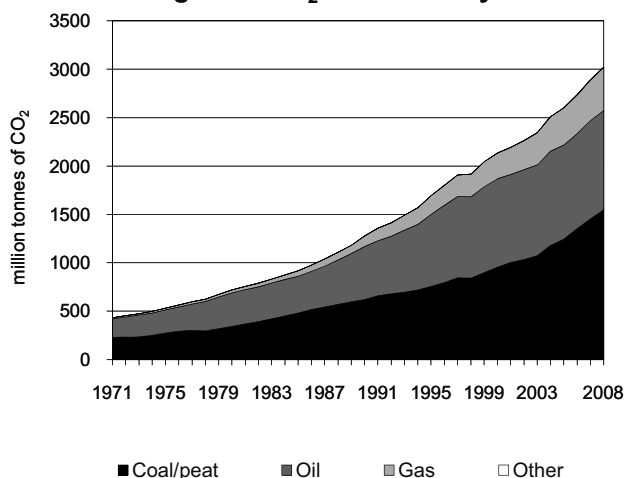
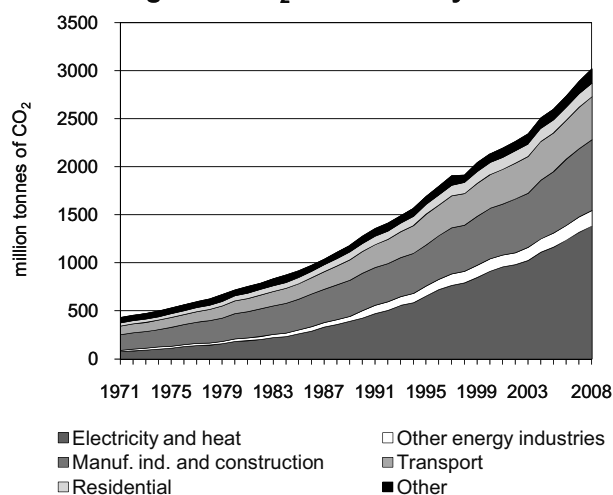
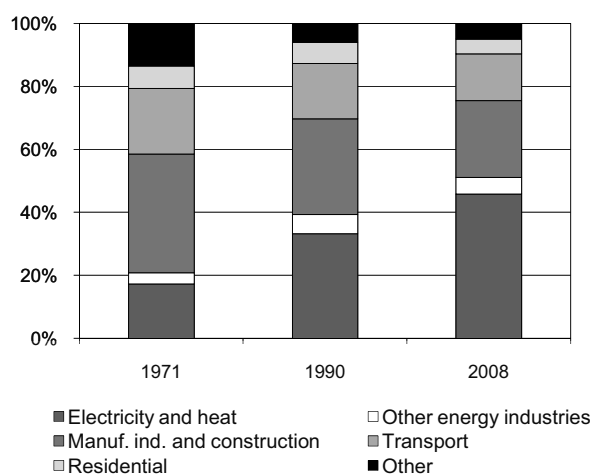
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

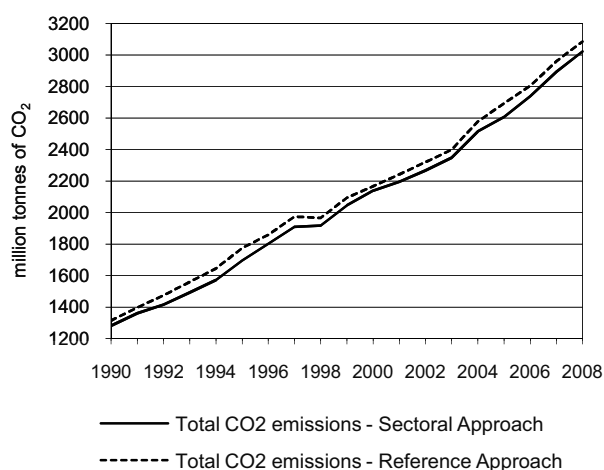


Figure 5. Electricity generation by fuel

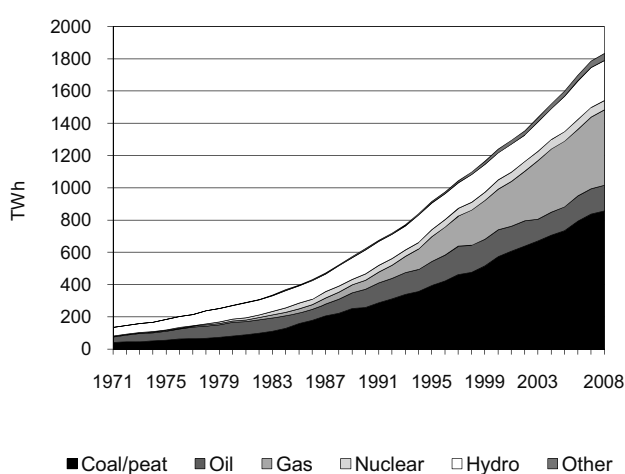
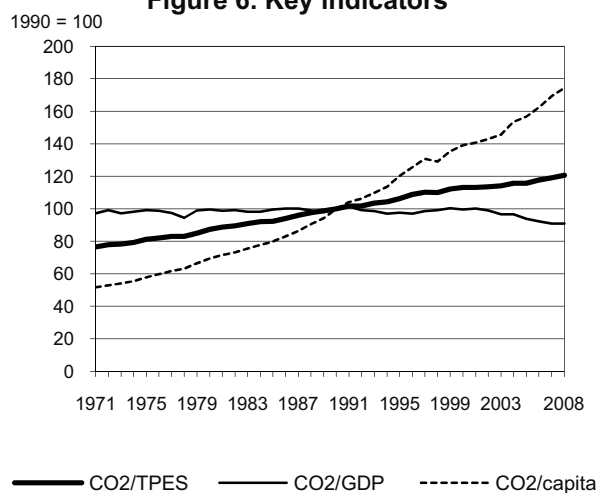


Figure 6. Key indicators



Asia (excluding China)

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1 280.8	1 694.9	2 137.5	2 604.5	2 738.5	2 893.8	3 022.8	136.0%
CO ₂ Reference Approach (Mt of CO ₂)	1 313.1	1 774.4	2 166.4	2 693.4	2 803.6	2 960.5	3 083.9	134.9%
TPES (PJ)	30 167	37 607	44 487	53 061	54 802	57 277	59 050	95.7%
TPES (Mtoe)	720.5	898.2	1 062.5	1 267.3	1 308.9	1 368.0	1 410.4	95.7%
GDP (billion 2000 USD)	930.1	1 262.2	1 560.4	2 014.7	2 156.3	2 311.6	2 417.3	159.9%
GDP PPP (billion 2000 USD)	3 279.4	4 353.3	5 393.1	7 162.3	7 709.6	8 297.2	8 760.1	167.1%
Population (millions)	1 613.4	1 776.9	1 934.7	2 093.1	2 123.3	2 153.0	2 183.0	35.3%
CO ₂ / TPES (t CO ₂ per TJ)	42.5	45.1	48.0	49.1	50.0	50.5	51.2	20.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.38	1.34	1.37	1.29	1.27	1.25	1.25	-9.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.39	0.39	0.40	0.36	0.36	0.35	0.35	-11.6%
CO ₂ / population (t CO ₂ per capita)	0.79	0.95	1.10	1.24	1.29	1.34	1.38	74.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1 548.5	1 026.8	445.3	2.3	3 022.8	136.0%
Main activity producer elec. and heat	927.0	108.5	197.8	0.0	1 233.3	214.3%
Unallocated autoproducers	107.1	17.2	24.6	2.3	151.2	359.9%
Other energy industries	12.0	74.2	75.1	-	161.4	107.1%
Manufacturing industries and construction	407.8	219.3	110.7	-	737.8	89.3%
Transport	0.1	435.1	12.5	-	447.7	98.5%
<i>of which: road</i>	-	406.4	12.1	-	418.5	111.1%
Other	94.4	172.5	24.6	-	291.5	79.6%
<i>of which: residential</i>	16.0	105.8	18.4	-	140.2	64.5%
Reference Approach	1 584.1	1 032.9	464.5	2.3	3 083.9	134.9%
Diff. due to losses and/or transformation	26.5	2.7	19.4	-	48.5	
Statistical differences	9.2	3.5	- 0.2	-	12.5	
<i>Memo: international marine bunkers</i>	-	108.7	-	-	108.7	143.3%
<i>Memo: international aviation bunkers</i>	-	71.6	-	-	71.6	188.9%

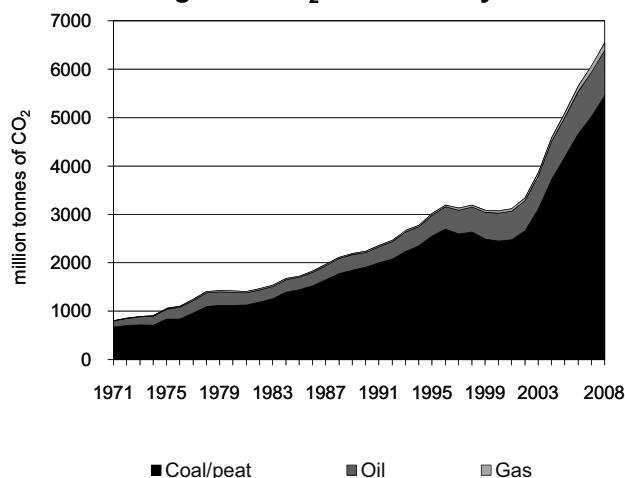
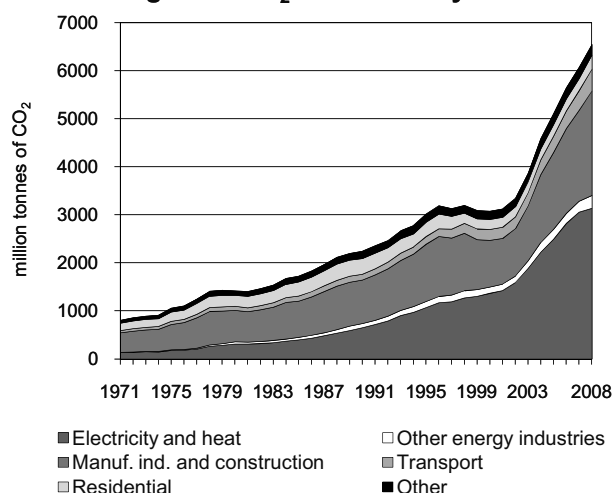
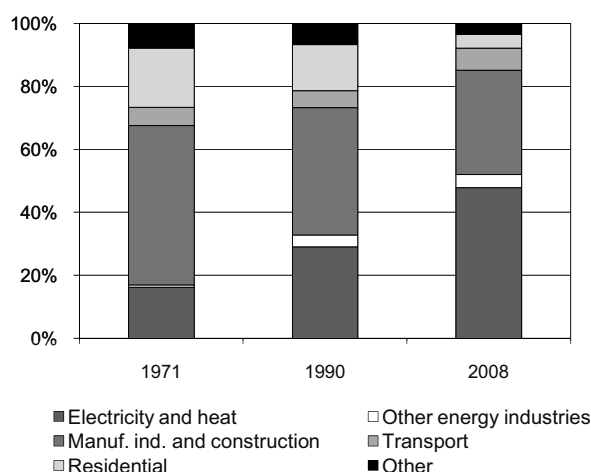
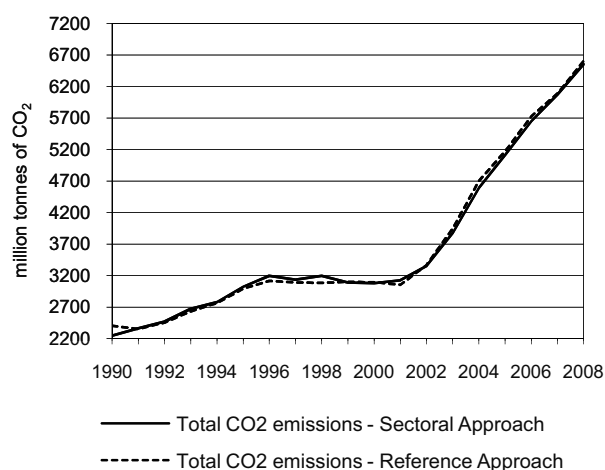
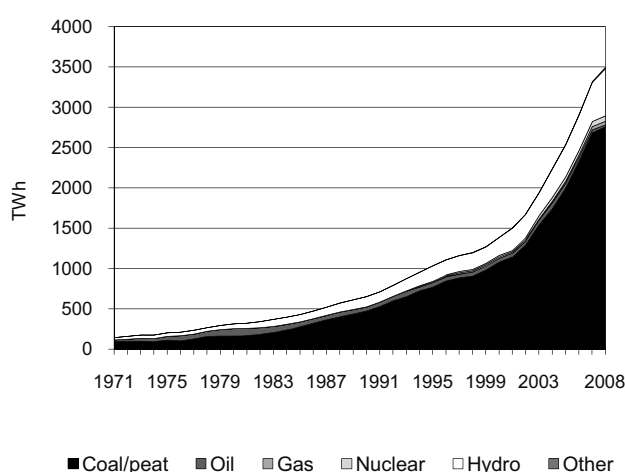
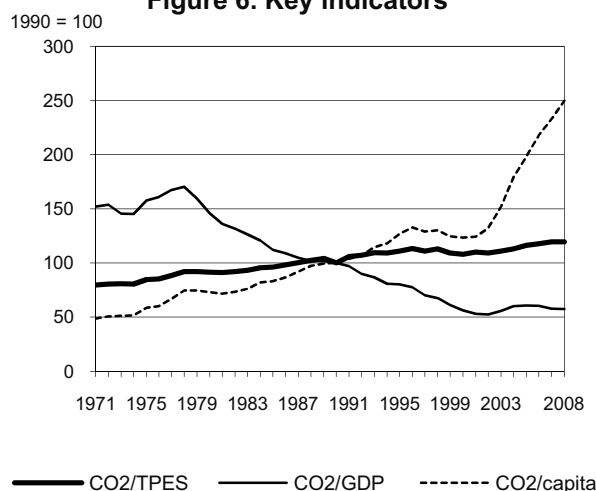
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	927.0	241.5%	17.0	17.0
Manufacturing industries - coal/peat	407.8	68.1%	7.5	24.5
Road - oil	406.4	105.0%	7.5	32.0
Manufacturing industries - oil	219.3	96.7%	4.0	36.0
Main activity prod. elec. and heat - gas	197.8	472.6%	3.6	39.7
Manufacturing industries - gas	110.7	209.8%	2.0	41.7
Main activity prod. elec. and heat - oil	108.5	25.5%	2.0	43.7
Unallocated autoproducers - coal/peat	107.1	298.0%	2.0	45.7
Residential - oil	105.8	58.6%	1.9	47.6
Non-specified other sectors - coal/peat	78.4	65.9%	1.4	49.1
Other energy industries - gas	75.1	129.3%	1.4	50.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>3 022.8</i>	<i>136.0%</i>	<i>55.6</i>	<i>55.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

China (incl. Hong Kong)

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


China (incl. Hong Kong)

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2 244.4	3 022.1	3 077.8	5 108.3	5 649.3	6 075.7	6 550.5	191.9%
CO ₂ Reference Approach (Mt of CO ₂)	2 402.3	2 992.7	3 093.8	5 170.1	5 724.7	6 089.5	6 602.5	174.8%
TPES (PJ)	36 496	44 269	46 362	71 484	78 072	82 764	89 203	144.4%
TPES (Mtoe)	871.7	1 057.4	1 107.3	1 707.4	1 864.7	1 976.8	2 130.6	144.4%
GDP (billion 2000 USD)	559.8	941.3	1 367.6	2 100.4	2 334.6	2 623.4	2 843.9	408.1%
GDP PPP (billion 2000 USD)	1 964.9	3 444.8	5 150.2	8 074.2	9 000.9	10 155.9	11 053.7	462.6%
Population (millions)	1 140.9	1 211.0	1 269.3	1 310.5	1 317.9	1 325.2	1 332.6	16.8%
CO ₂ / TPES (t CO ₂ per TJ)	61.5	68.3	66.4	71.5	72.4	73.4	73.4	19.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.01	3.21	2.25	2.43	2.42	2.32	2.30	-42.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.14	0.88	0.60	0.63	0.63	0.60	0.59	-48.1%
CO ₂ / population (t CO ₂ per capita)	1.97	2.50	2.42	3.90	4.29	4.58	4.92	149.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	5 460.8	934.8	154.9	-	6 550.5	191.9%
Main activity producer elec. and heat	3 040.6	19.7	26.8	-	3 087.2	381.8%
Unallocated autoproducers	37.1	12.7	-	-	49.8	325.1%
Other energy industries	170.1	77.2	21.3	-	268.6	218.3%
Manufacturing industries and construction	1 909.2	211.7	53.6	-	2 174.5	139.6%
Transport	12.7	443.7	0.5	-	456.9	277.4%
<i>of which: road</i>	-	333.9	0.5	-	334.4	410.3%
Other	291.1	169.8	52.7	-	513.5	7.2%
<i>of which: residential</i>	187.9	64.7	33.3	-	285.9	-13.0%
Reference Approach	5 475.6	967.9	159.0	-	6 602.5	174.8%
Diff. due to losses and/or transformation	100.3	28.9	3.3	-	132.6	
Statistical differences	- 85.5	4.1	0.8	-	- 80.6	
<i>Memo: international marine bunkers</i>	-	47.7	-	-	47.7	423.6%
<i>Memo: international aviation bunkers</i>	-	20.2	-	-	20.2	230.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 040.6	410.3%	31.9	31.9
Manufacturing industries - coal/peat	1 909.2	137.1%	20.0	51.9
Road - oil	333.9	409.5%	3.5	55.4
Manufacturing industries - oil	211.7	137.8%	2.2	57.6
Residential - coal/peat	187.9	-40.7%	2.0	59.6
Other energy industries - coal/peat	170.1	233.6%	1.8	61.4
Other transport - oil	109.8	544.0%	1.2	62.5
Non-specified other - oil	105.1	128.9%	1.1	63.6
Non-specified other sectors - coal/peat	103.1	-1.0%	1.1	64.7
Other energy industries - oil	77.2	185.3%	0.8	65.5
Residential - oil	64.7	701.4%	0.7	66.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>6 550.5</i>	<i>191.9%</i>	<i>68.7</i>	<i>68.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

COUNTRY TABLES

Albania

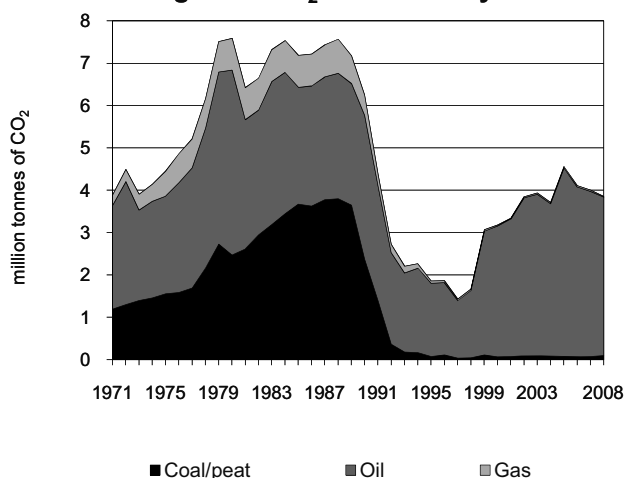
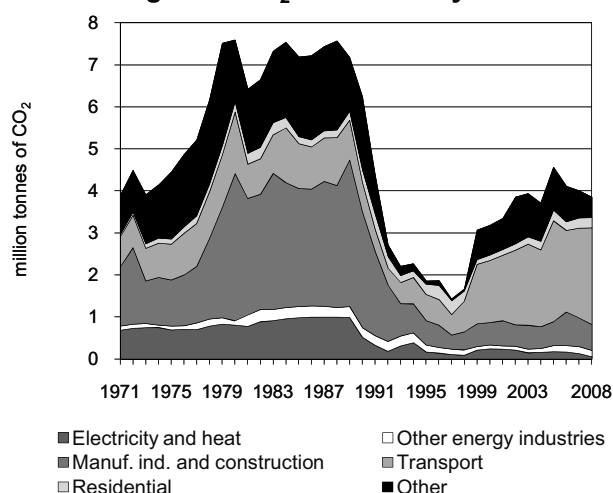
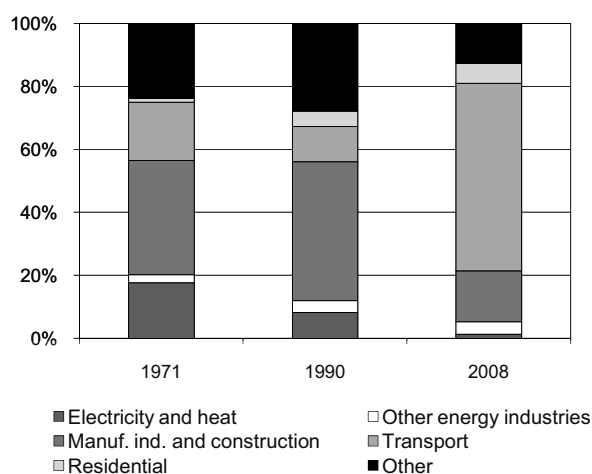
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

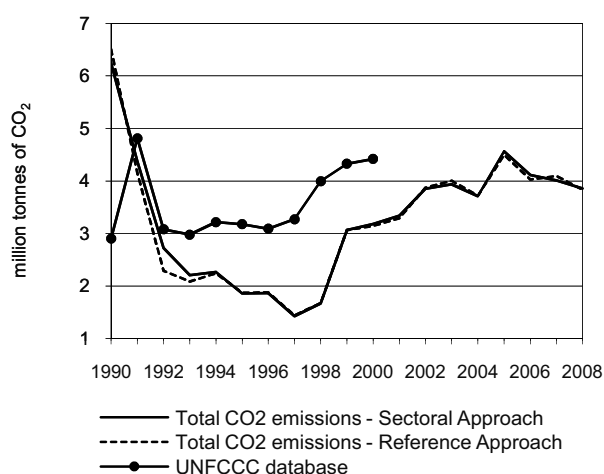


Figure 5. Electricity generation by fuel

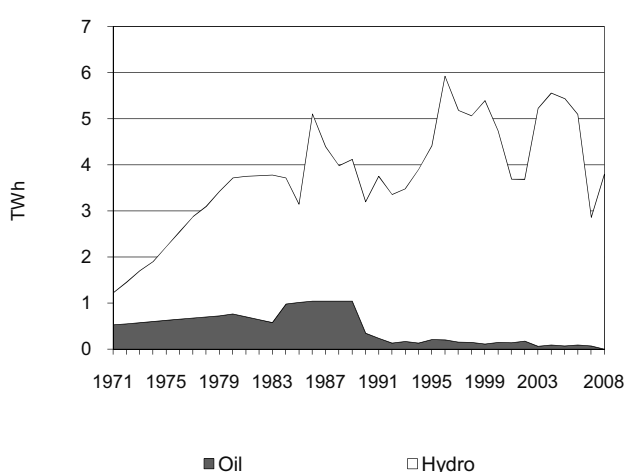
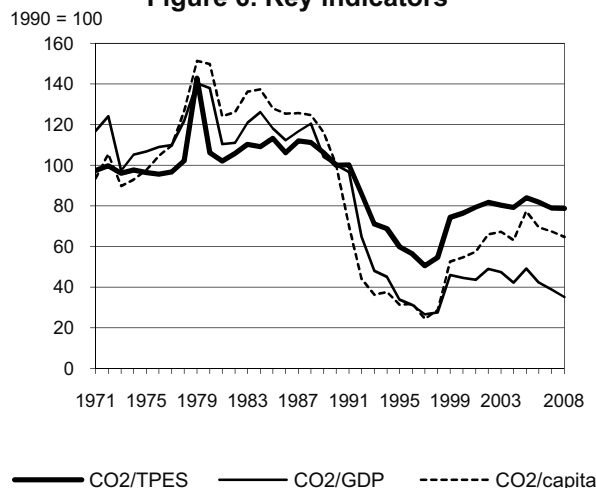


Figure 6. Key indicators



Albania

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	6.25	1.86	3.18	4.56	4.11	4.01	3.86	-38.2%
CO ₂ Reference Approach (Mt of CO ₂)	6.51	1.87	3.14	4.50	4.03	4.09	3.83	-41.1%
TPES (PJ)	111	55	74	97	90	91	87	-21.5%
TPES (Mtoe)	2.66	1.32	1.78	2.32	2.15	2.17	2.09	-21.5%
GDP (billion 2000 USD)	3.22	2.83	3.69	4.79	5.03	5.34	5.66	75.8%
GDP PPP (billion 2000 USD)	9.93	8.73	11.39	14.80	15.55	16.48	17.47	75.8%
Population (millions)	3.29	3.13	3.07	3.11	3.12	3.13	3.14	-4.4%
CO ₂ / TPES (t CO ₂ per TJ)	56.0	33.5	42.8	47.0	45.8	44.2	44.1	-21.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.94	0.66	0.86	0.95	0.82	0.75	0.68	-64.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.63	0.21	0.28	0.31	0.26	0.24	0.22	-64.9%
CO ₂ / population (t CO ₂ per capita)	1.90	0.59	1.04	1.47	1.32	1.28	1.23	-35.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.10	3.74	0.02	-	3.86	-38.2%
Main activity producer elec. and heat	-	-	-	-	-	-100.0%
Unallocated autoproducers	-	0.05	-	-	0.05	x
Other energy industries	-	0.14	0.02	-	0.15	-33.4%
Manufacturing industries and construction	0.05	0.57	-	-	0.62	-77.5%
Transport	-	2.30	-	-	2.30	228.6%
<i>of which: road</i>	-	2.04	-	-	2.04	191.3%
Other	0.05	0.69	-	-	0.73	-64.1%
<i>of which: residential</i>	0.05	0.19	-	-	0.24	-20.7%
Reference Approach	0.10	3.72	0.02	-	3.83	-41.1%
Diff. due to losses and/or transformation	-	-0.01	-	-	-0.01	
Statistical differences	-0.00	-0.02	-	-	-0.02	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.38	-	-	0.38	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	2.04	191.3%	25.9	25.9
Manufacturing industries - oil	0.57	-65.9%	7.2	33.1
Non-specified other - oil	0.49	x	6.2	39.4
Other transport - oil	0.26	x	3.3	42.7
Residential - oil	0.19	-31.0%	2.5	45.1
Other energy industries - oil	0.14	-40.7%	1.7	46.9
Unallocated autoproducers - oil	0.05	x	0.7	47.5
Manufacturing industries - coal/peat	0.05	-92.9%	0.6	48.2
Residential - coal/peat	0.05	x	0.6	48.8
Other energy industries - gas	0.02	x	0.2	49.0
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>3.86</i>	<i>-38.2%</i>	<i>49.0</i>	<i>49.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Algeria

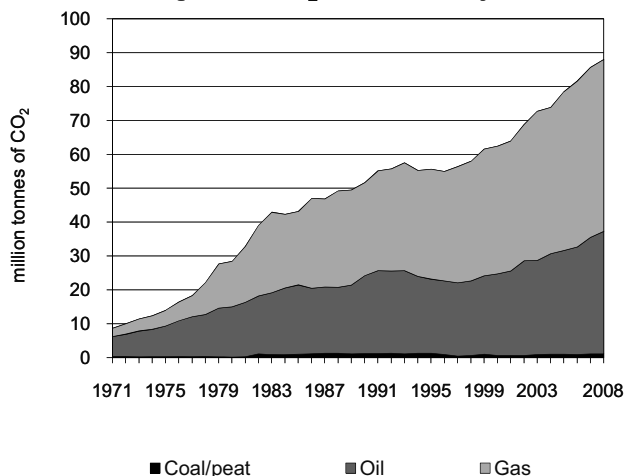
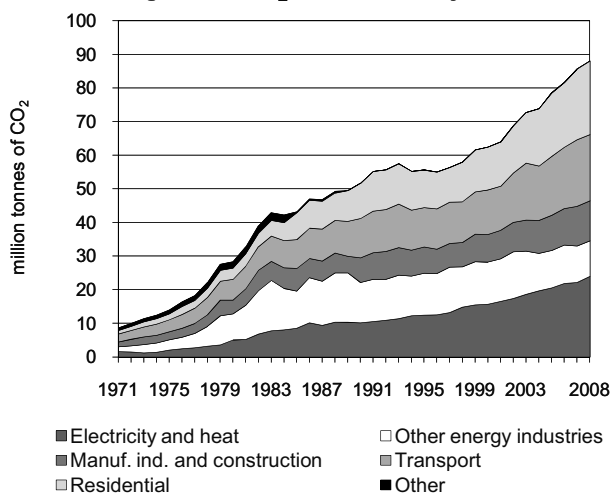
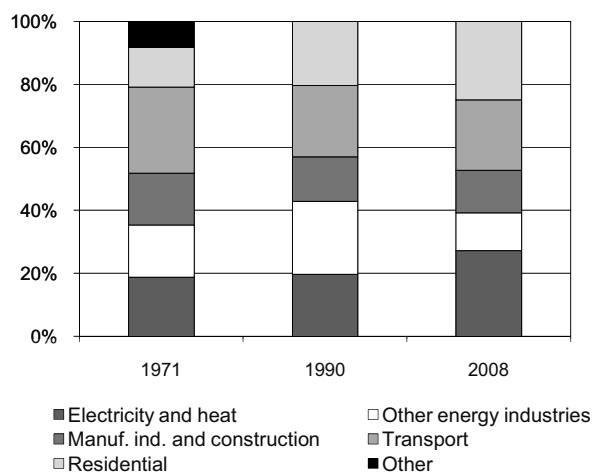
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

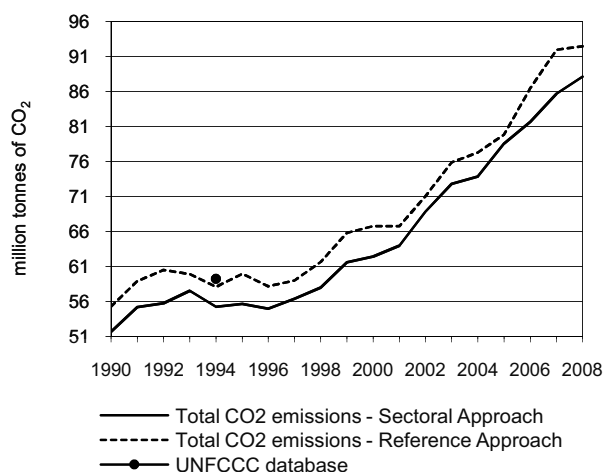


Figure 5. Electricity generation by fuel

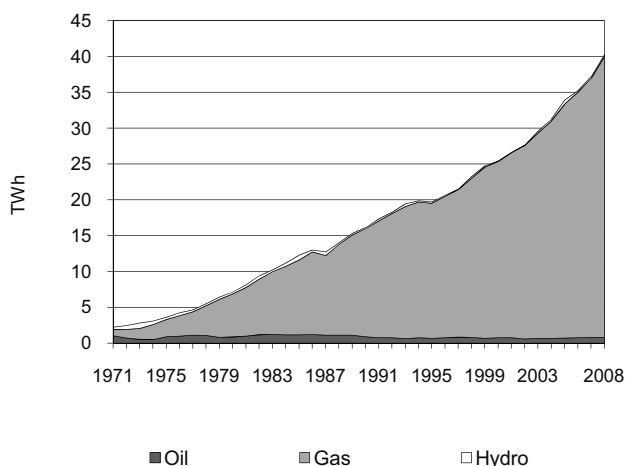
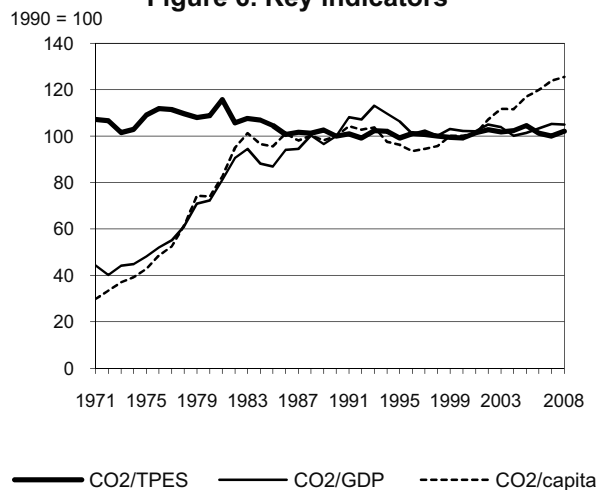


Figure 6. Key indicators



Algeria

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	51.67	55.65	62.42	78.55	81.67	85.69	88.09	70.5%
CO ₂ Reference Approach (Mt of CO ₂)	55.29	59.95	66.78	79.86	86.45	91.93	92.44	67.2%
TPES (PJ)	929	1 009	1 131	1 351	1 451	1 541	1 552	67.0%
TPES (Mtoe)	22.19	24.11	27.02	32.26	34.66	36.80	37.07	67.0%
GDP (billion 2000 USD)	46.37	46.96	54.79	69.57	70.96	73.09	75.28	62.4%
GDP PPP (billion 2000 USD)	137.32	139.09	162.27	206.03	210.15	216.46	222.95	62.4%
Population (millions)	25.28	28.27	30.51	32.85	33.35	33.85	34.36	35.9%
CO ₂ / TPES (t CO ₂ per TJ)	55.6	55.1	55.2	58.2	56.3	55.6	56.8	2.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.11	1.18	1.14	1.13	1.15	1.17	1.17	5.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.38	0.40	0.38	0.38	0.39	0.40	0.40	5.0%
CO ₂ / population (t CO ₂ per capita)	2.04	1.97	2.05	2.39	2.45	2.53	2.56	25.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1.18	36.13	50.78	-	88.09	70.5%
Main activity producer elec. and heat	-	0.26	23.28	-	23.54	149.2%
Unallocated autoproducers	-	0.46	-	-	0.46	-36.4%
Other energy industries	-	1.53	9.01	-	10.55	-12.2%
Manufacturing industries and construction	1.18	3.76	7.01	-	11.95	63.4%
Transport	-	17.66	2.03	-	19.69	68.3%
<i>of which: road</i>	-	17.66	-	-	17.66	60.4%
Other	-	12.45	9.46	-	21.91	108.9%
<i>of which: residential</i>	-	12.45	9.46	-	21.91	108.9%
Reference Approach	2.93	37.75	51.76	-	92.44	67.2%
Diff. due to losses and/or transformation	1.75	0.98	0.97	-	3.70	
Statistical differences	-	0.64	0.00	-	0.64	
<i>Memo: international marine bunkers</i>	-	1.01	-	-	1.01	-25.8%
<i>Memo: international aviation bunkers</i>	-	1.25	-	-	1.25	14.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	23.28	151.6%	13.9	13.9
Road - oil	17.66	60.4%	10.6	24.5
Residential - oil	12.45	54.8%	7.4	31.9
Residential - gas	9.46	287.2%	5.7	37.6
Other energy industries - gas	9.01	-18.1%	5.4	43.0
Manufacturing industries - gas	7.01	73.2%	4.2	47.2
Manufacturing industries - oil	3.76	87.3%	2.3	49.4
Other transport - gas	2.03	195.3%	1.2	50.7
Other energy industries - oil	1.53	52.5%	0.9	51.6
Manufacturing industries - coal/peat	1.18	-6.2%	0.7	52.3
Unallocated autoproducers - oil	0.46	-36.4%	0.3	52.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>88.09</i>	<i>70.5%</i>	<i>52.7</i>	<i>52.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Angola

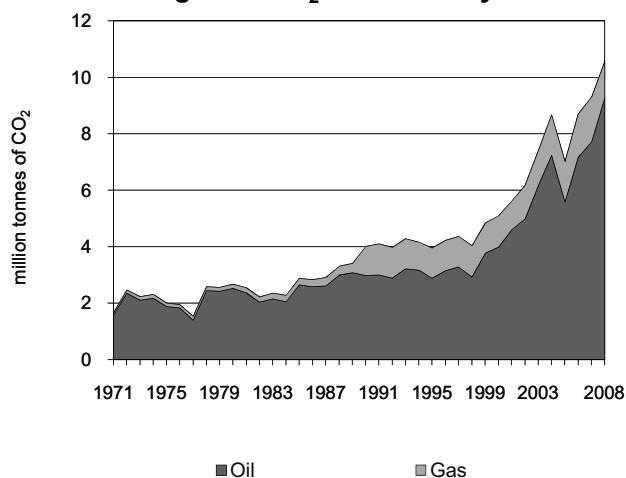
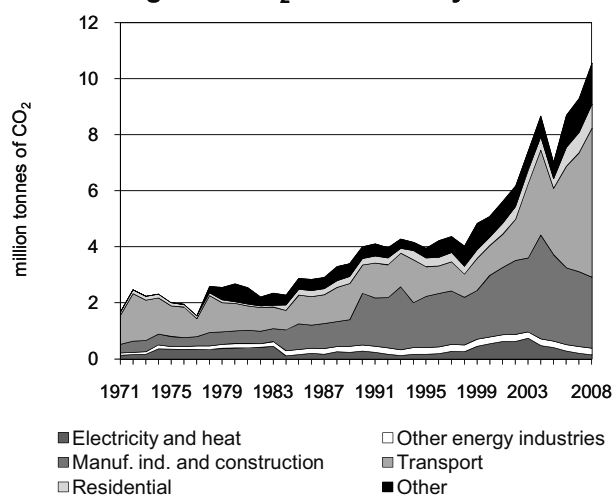
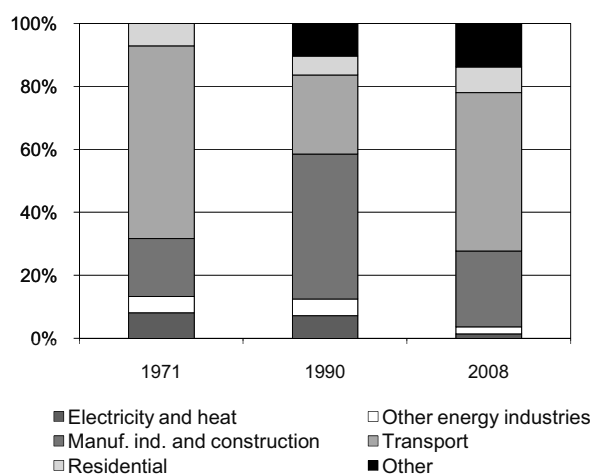
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Figure 4. Reference vs Sectoral Approach

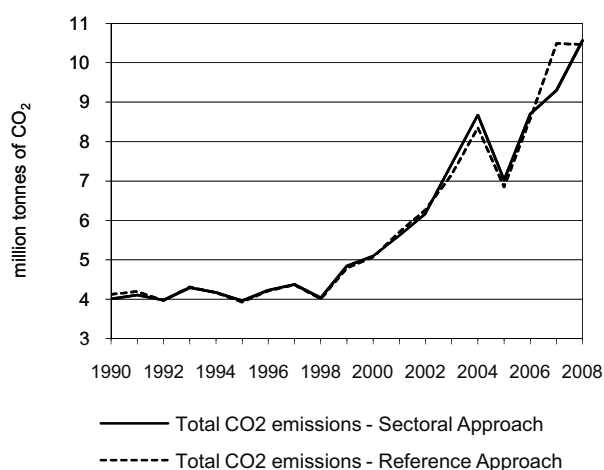


Figure 5. Electricity generation by fuel

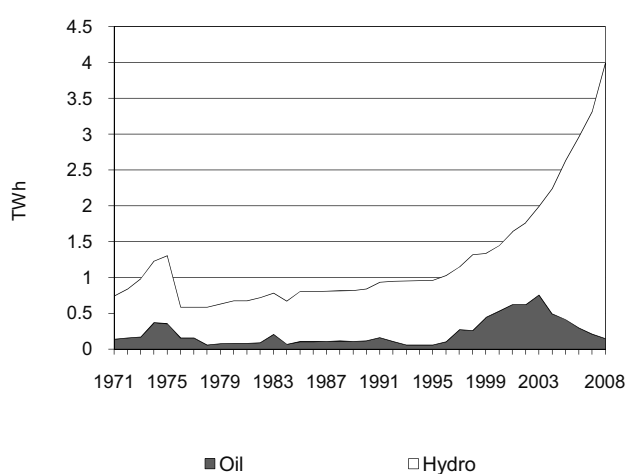
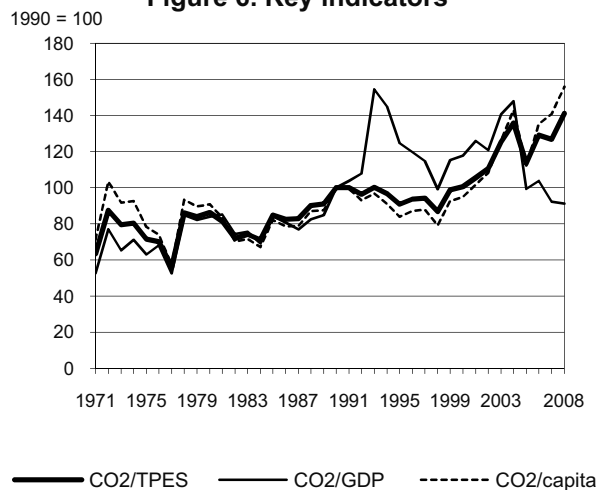


Figure 6. Key indicators



Angola

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	4.01	3.96	5.10	7.02	8.70	9.30	10.56	163.4%
CO ₂ Reference Approach (Mt of CO ₂)	4.12	3.93	5.07	6.85	8.58	10.49	10.46	153.7%
TPES (PJ)	246	268	311	380	414	451	459	86.5%
TPES (Mtoe)	5.88	6.40	7.44	9.07	9.89	10.76	10.97	86.5%
GDP (billion 2000 USD)	8.46	6.70	9.13	14.94	17.71	21.30	24.45	188.9%
GDP PPP (billion 2000 USD)	18.77	14.85	20.24	33.11	39.26	47.22	54.21	188.9%
Population (millions)	10.66	12.54	14.28	16.62	17.09	17.56	18.02	69.0%
CO ₂ / TPES (t CO ₂ per TJ)	16.3	14.8	16.4	18.5	21.0	20.6	23.0	41.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.47	0.59	0.56	0.47	0.49	0.44	0.43	-8.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.21	0.27	0.25	0.21	0.22	0.20	0.19	-8.8%
CO ₂ / population (t CO ₂ per capita)	0.38	0.32	0.36	0.42	0.51	0.53	0.59	55.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	9.27	1.30	-	10.56	163.4%
Main activity producer elec. and heat	-	0.13	-	-	0.13	-37.8%
Unallocated autoproducers	-	0.02	-	-	0.02	-78.3%
Other energy industries	-	0.24	-	-	0.24	10.4%
Manufacturing industries and construction	-	1.24	1.30	-	2.54	37.7%
Transport	-	5.31	-	-	5.31	428.2%
<i>of which: road</i>	-	3.46	-	-	3.46	243.5%
Other	-	2.32	-	-	2.32	253.9%
<i>of which: residential</i>	-	0.86	-	-	0.86	259.1%
Reference Approach	-	9.17	1.30	-	10.46	153.7%
Diff. due to losses and/or transformation	-	- 0.29	-	-	- 0.29	
Statistical differences	-	0.19	-	-	0.19	
<i>Memo: international marine bunkers</i>	-	0.04	-	-	0.04	188.7%
<i>Memo: international aviation bunkers</i>	-	0.42	-	-	0.42	-59.2%

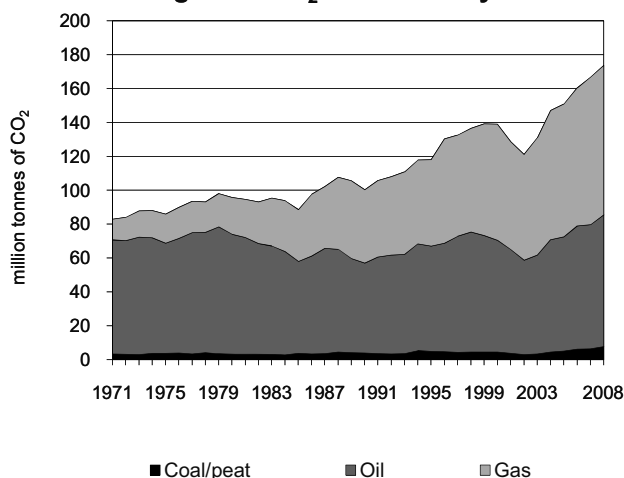
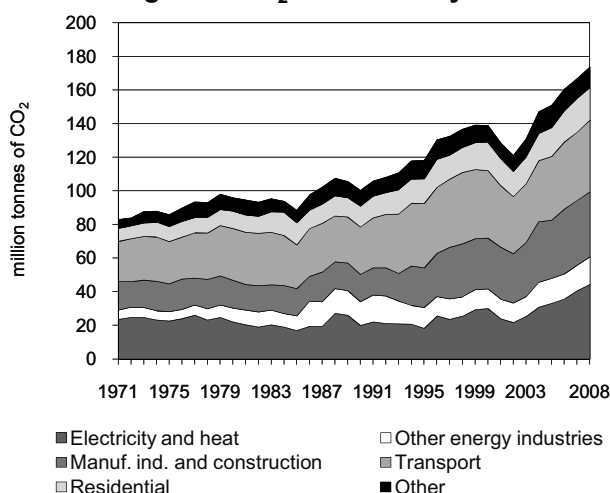
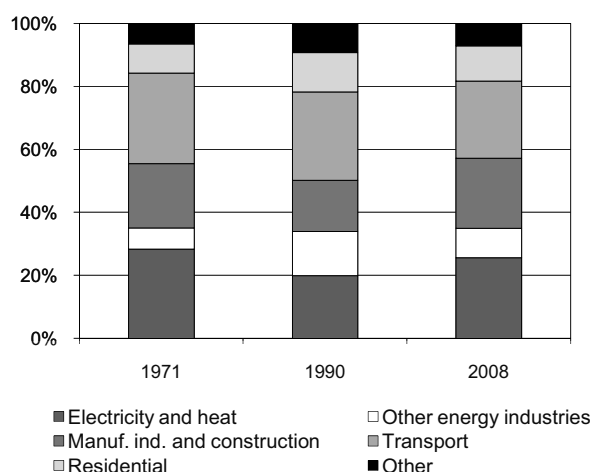
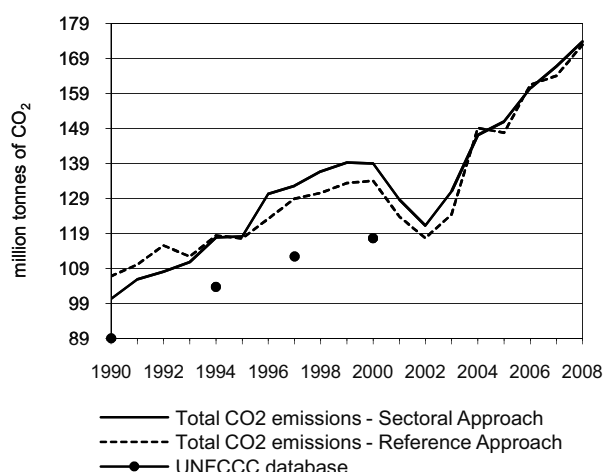
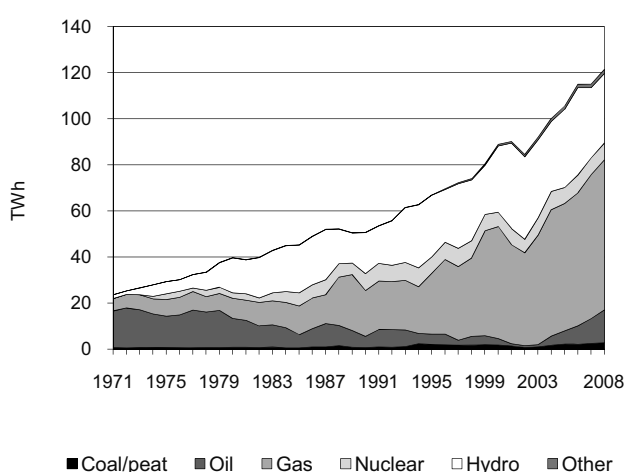
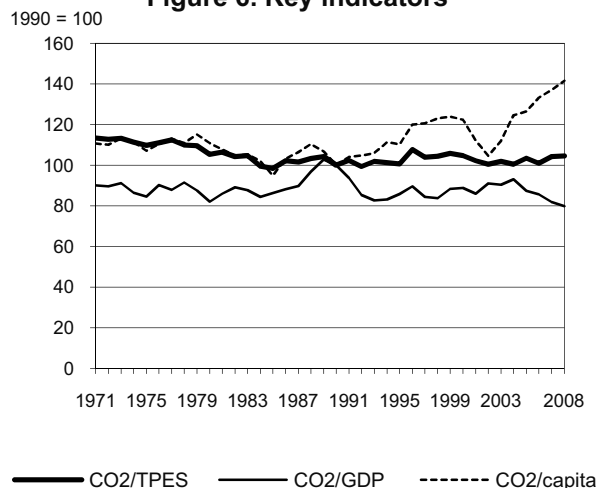
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	3.46	243.5%	3.3	3.3
Other transport - oil	1.86	x	1.8	5.1
Non-specified other - oil	1.46	251.0%	1.4	6.5
Manufacturing industries - gas	1.30	25.9%	1.2	7.7
Manufacturing industries - oil	1.24	52.5%	1.2	8.9
Residential - oil	0.86	259.1%	0.8	9.7
Other energy industries - oil	0.24	10.4%	0.2	10.0
Main activity prod. elec. and heat - oil	0.13	-37.8%	0.1	10.1
Unallocated autoproducers - oil	0.02	-78.3%	0.0	10.1
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>10.56</i>	<i>163.4%</i>	<i>10.1</i>	<i>10.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Argentina

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Argentina

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	100.38	118.20	139.03	150.96	160.50	166.77	173.80	73.1%
CO ₂ Reference Approach (Mt of CO ₂)	106.81	117.60	134.07	147.74	161.49	164.06	172.93	61.9%
TPES (PJ)	1 929	2 258	2 552	2 804	3 056	3 078	3 197	65.7%
TPES (Mtoe)	46.07	53.94	60.95	66.97	72.98	73.51	76.36	65.7%
GDP (billion 2000 USD)	182.21	250.26	284.20	313.63	340.18	369.62	395.37	117.0%
GDP PPP (billion 2000 USD)	286.10	392.95	446.25	492.45	534.14	580.36	620.81	117.0%
Population (millions)	32.58	34.84	36.90	38.75	39.13	39.50	39.88	22.4%
CO ₂ / TPES (t CO ₂ per TJ)	52.0	52.3	54.5	53.8	52.5	54.2	54.4	4.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.47	0.49	0.48	0.47	0.45	0.44	-20.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.35	0.30	0.31	0.31	0.30	0.29	0.28	-20.2%
CO ₂ / population (t CO ₂ per capita)	3.08	3.39	3.77	3.90	4.10	4.22	4.36	41.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	7.74	77.80	88.26	-	173.80	73.1%
Main activity producer elec. and heat	1.34	9.72	24.98	-	36.03	135.3%
Unallocated autoproducers	1.85	1.06	5.50	-	8.41	79.1%
Other energy industries	0.00	2.67	13.61	-	16.28	15.6%
Manufacturing industries and construction	4.54	15.37	18.76	-	38.67	137.4%
Transport	-	36.35	6.34	-	42.69	51.6%
<i>of which: road</i>	-	34.50	5.35	-	39.85	52.7%
Other	-	12.64	19.08	-	31.72	45.2%
<i>of which: residential</i>	-	2.60	16.71	-	19.31	54.3%
Reference Approach	4.71	77.52	90.70	-	172.93	61.9%
Diff. due to losses and/or transformation	- 3.31	1.71	0.65	-	- 0.95	
Statistical differences	0.28	- 1.99	1.79	-	0.09	
<i>Memo: international marine bunkers</i>	-	3.02	-	-	3.02	35.7%
<i>Memo: international aviation bunkers</i>	-	2.41	-	-	2.41	x

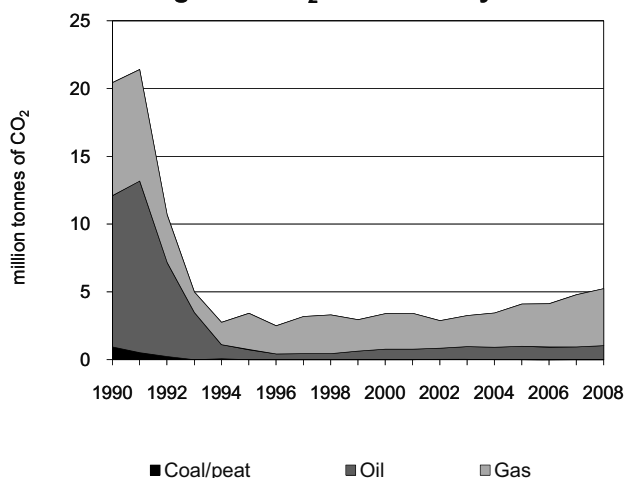
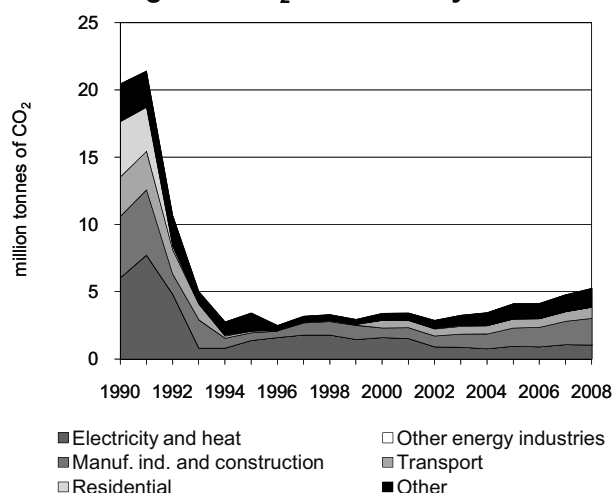
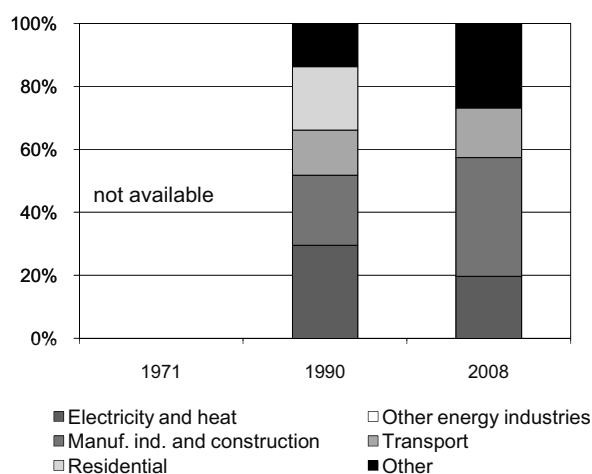
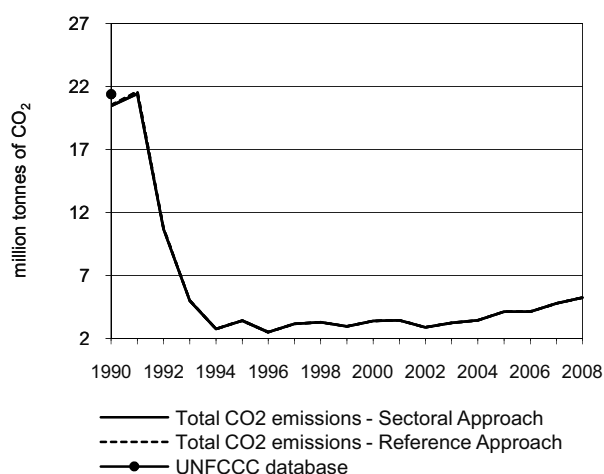
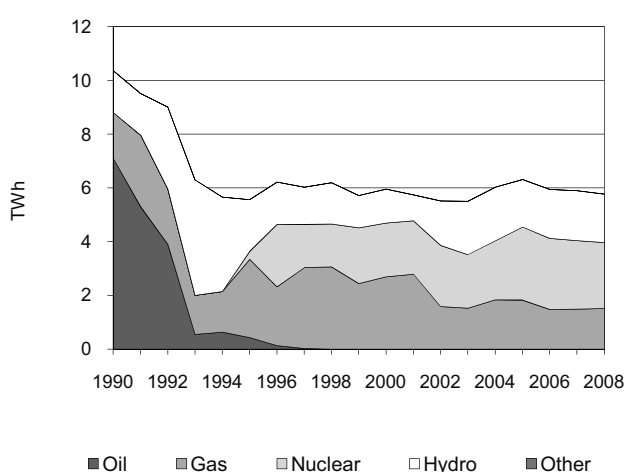
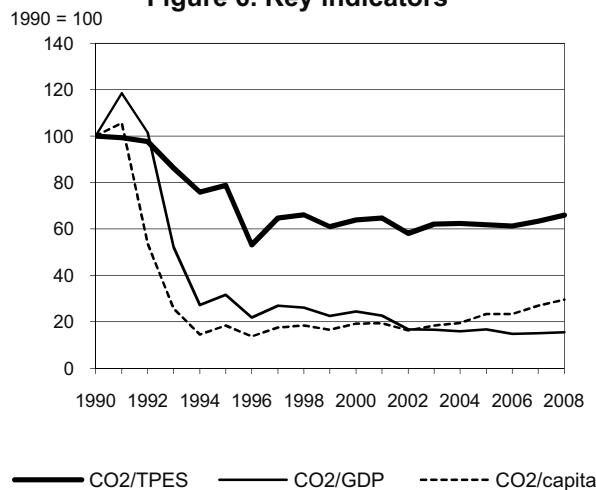
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	34.50	34.4%	9.9	9.9
Main activity prod. elec. and heat - gas	24.98	140.0%	7.2	17.1
Manufacturing industries - gas	18.76	88.7%	5.4	22.5
Residential - gas	16.71	98.2%	4.8	27.3
Manufacturing industries - oil	15.37	215.3%	4.4	31.8
Other energy industries - gas	13.61	53.1%	3.9	35.7
Non-specified other - oil	10.04	70.7%	2.9	38.6
Main activity prod. elec. and heat - oil	9.72	113.5%	2.8	41.4
Unallocated autoproducers - gas	5.50	205.1%	1.6	42.9
Road - gas	5.35	+	1.5	44.5
Manufacturing industries - coal/peat	4.54	209.2%	1.3	45.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>173.80</i>	<i>73.1%</i>	<i>50.0</i>	<i>50.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Armenia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Armenia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	20.46	3.42	3.40	4.12	4.14	4.79	5.26	-74.3%
CO ₂ Reference Approach (Mt of CO ₂)	20.52	3.42	3.40	4.12	4.14	4.79	5.26	-74.4%
TPES (PJ)	322	68	84	105	107	119	125	-61.1%
TPES (Mtoe)	7.70	1.63	2.00	2.51	2.55	2.85	3.00	-61.1%
GDP (billion 2000 USD)	2.82	1.49	1.91	3.40	3.85	4.38	4.68	65.9%
GDP PPP (billion 2000 USD)	11.01	5.81	7.46	13.28	15.04	17.10	18.26	65.9%
Population (millions)	3.55	3.22	3.08	3.07	3.07	3.07	3.08	-13.2%
CO ₂ / TPES (t CO ₂ per TJ)	63.5	50.0	40.6	39.3	38.9	40.2	41.9	-34.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	7.26	2.30	1.78	1.21	1.08	1.09	1.12	-84.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.86	0.59	0.46	0.31	0.28	0.28	0.29	-84.5%
CO ₂ / population (t CO ₂ per capita)	5.77	1.06	1.11	1.34	1.35	1.56	1.71	-70.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	1.05	4.21	-	5.26	-74.3%
Main activity producer elec. and heat	-	-	1.03	-	1.03	-82.9%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	-	0.02	1.96	-	1.98	-56.6%
Transport	-	0.60	0.23	-	0.83	-71.7%
<i>of which: road</i>	-	0.60	0.23	-	0.83	-71.7%
Other	-	0.43	0.98	-	1.41	-79.6%
<i>of which: residential</i>	-	-	-	-	-	-100.0%
Reference Approach	0.00	1.05	4.21	-	5.26	-74.4%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.00	-	0.00	-	0.00	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.17	-	-	0.17	-71.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - gas	1.96	-13.5%	20.1	20.1
Main activity prod. elec. and heat - gas	1.03	-46.1%	10.6	30.7
Non-specified other - gas	0.98	-35.5%	10.0	40.7
Road - oil	0.60	-79.6%	6.1	46.8
Non-specified other - oil	0.43	-66.4%	4.4	51.2
Road - gas	0.23	x	2.4	53.6
Manufacturing industries - oil	0.02	-99.1%	0.2	53.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	5.26	-74.3%	53.8	53.8

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Australia

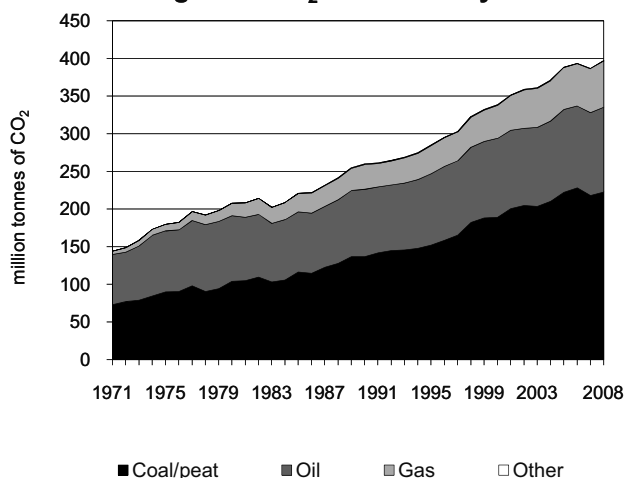
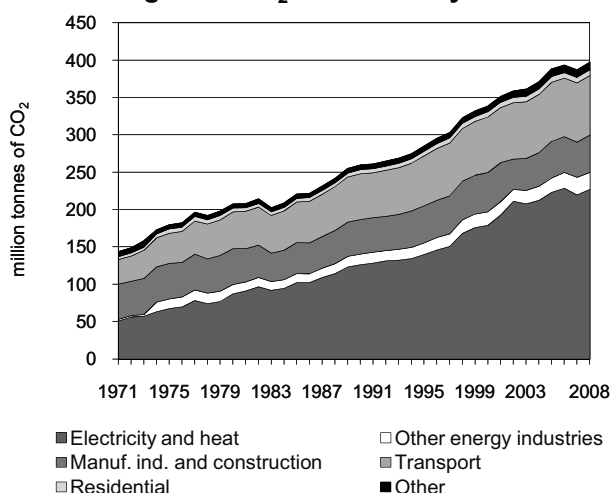
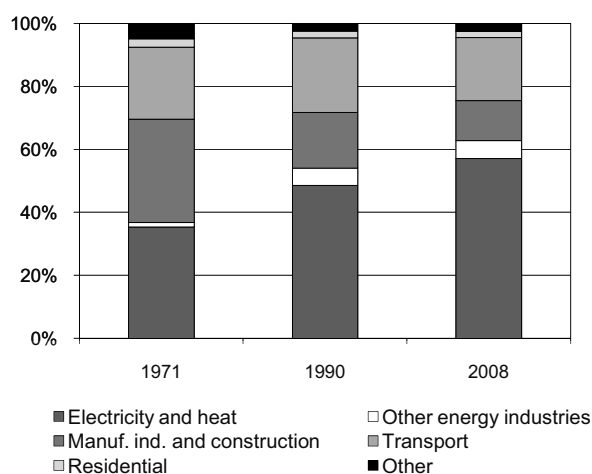
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

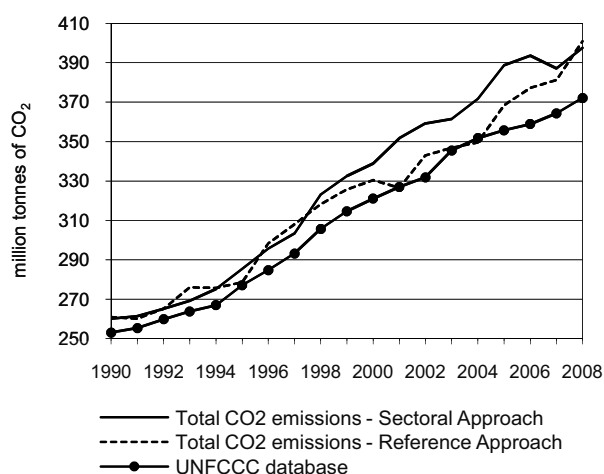


Figure 5. Electricity generation by fuel

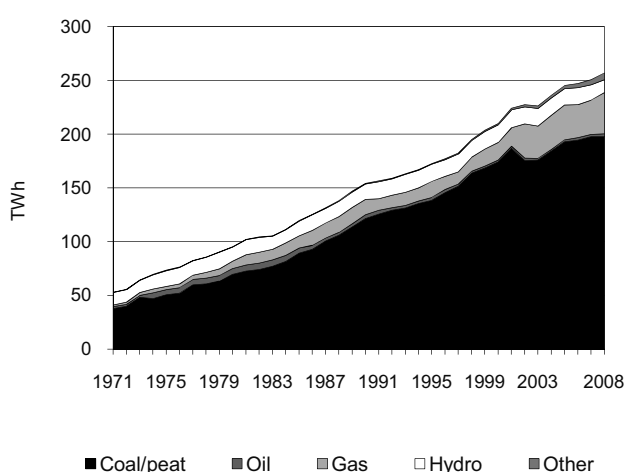
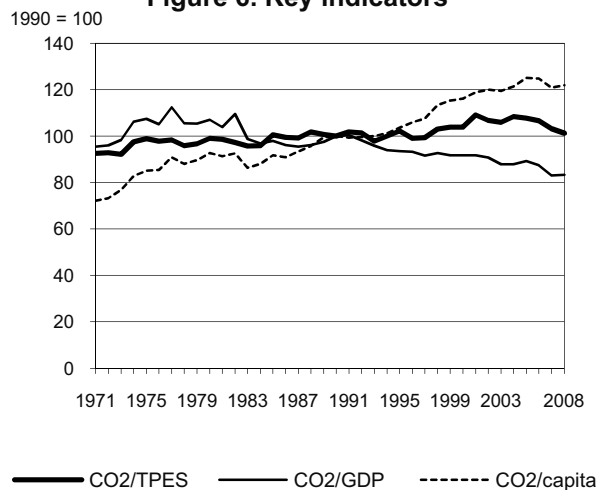


Figure 6. Key indicators



Australia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	260.08	285.46	338.80	388.81	393.63	387.17	397.54	52.9%
CO ₂ Reference Approach (Mt of CO ₂)	260.93	278.55	330.40	368.48	377.15	381.33	400.95	53.7%
TPES (PJ)	3 610	3 875	4 526	5 007	5 122	5 211	5 448	50.9%
TPES (Mtoe)	86.23	92.56	108.11	119.59	122.33	124.46	130.11	50.9%
GDP (billion 2000 USD)	281.43	330.13	399.61	471.39	486.94	504.86	516.41	83.5%
GDP PPP (billion 2000 USD)	370.03	434.06	525.42	619.79	640.25	663.81	679.00	83.5%
Population (millions)	17.17	18.19	19.27	20.52	20.82	21.15	21.51	25.3%
CO ₂ / TPES (t CO ₂ per TJ)	72.0	73.7	74.9	77.7	76.9	74.3	73.0	1.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.92	0.86	0.85	0.82	0.81	0.77	0.77	-16.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.70	0.66	0.64	0.63	0.61	0.58	0.59	-16.7%
CO ₂ / population (t CO ₂ per capita)	15.15	15.69	17.58	18.95	18.90	18.30	18.48	22.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	222.75	112.94	61.39	0.47	397.54	52.9%
Main activity producer elec. and heat	202.83	1.65	14.25	-	218.73	80.6%
Unallocated autoproducers	0.22	0.70	7.44	-	8.37	61.2%
Other energy industries	4.44	7.47	10.85	-	22.76	58.3%
Manufacturing industries and construction	14.64	16.21	18.88	0.47	50.20	9.1%
Transport	0.41	78.37	0.94	-	79.72	29.8%
<i>of which: road</i>	-	67.77	0.08	-	67.85	24.5%
Other	0.21	8.54	9.02	-	17.77	48.2%
<i>of which: residential</i>	0.03	0.77	6.87	-	7.67	36.3%
Reference Approach	229.86	111.03	59.59	0.47	400.95	53.7%
Diff. due to losses and/or transformation	- 0.59	- 12.98	0.82	-	- 12.74	
Statistical differences	7.70	11.07	- 2.62	-	16.14	
<i>Memo: international marine bunkers</i>	-	3.05	-	-	3.05	42.7%
<i>Memo: international aviation bunkers</i>	-	9.05	-	-	9.05	110.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	202.83	80.1%	35.3	35.3
Road - oil	67.77	24.3%	11.8	47.1
Manufacturing industries - gas	18.88	37.6%	3.3	50.3
Manufacturing industries - oil	16.21	25.8%	2.8	53.2
Manufacturing industries - coal/peat	14.64	-21.2%	2.5	55.7
Main activity prod. elec. and heat - gas	14.25	101.4%	2.5	58.2
Other energy industries - gas	10.85	125.1%	1.9	60.1
Other transport - oil	10.60	61.1%	1.8	61.9
Non-specified other - oil	7.77	89.3%	1.4	63.3
Other energy industries - oil	7.47	3.7%	1.3	64.6
Unallocated autoproducers - gas	7.44	619.2%	1.3	65.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>397.54</i>	<i>52.9%</i>	<i>69.1</i>	<i>69.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Austria

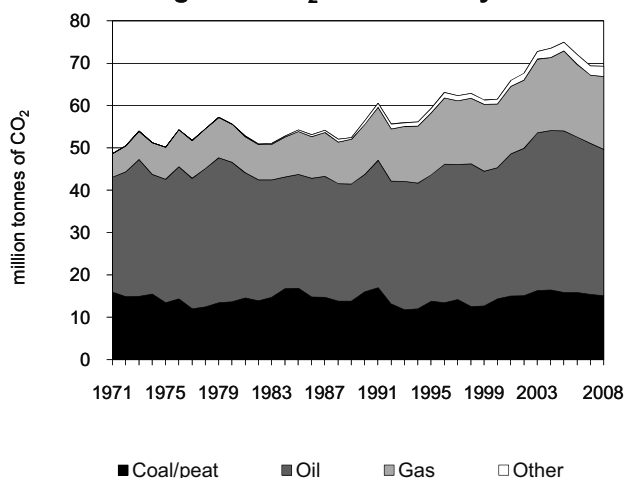
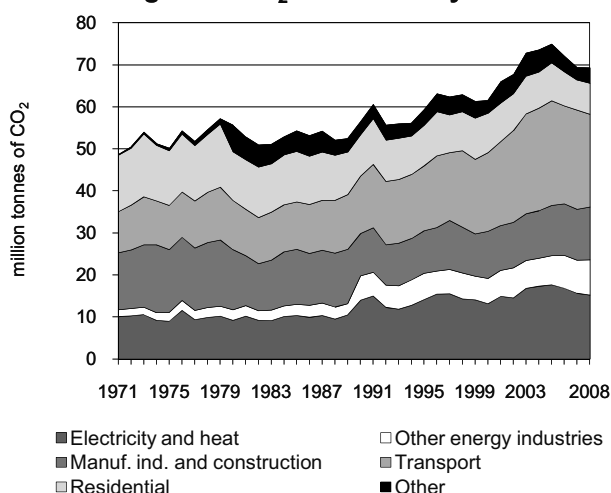
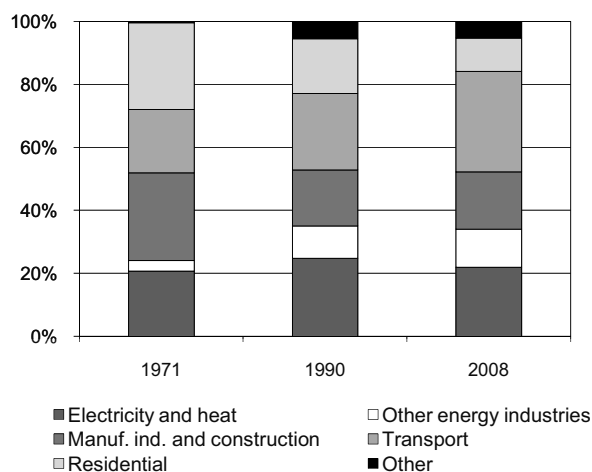
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

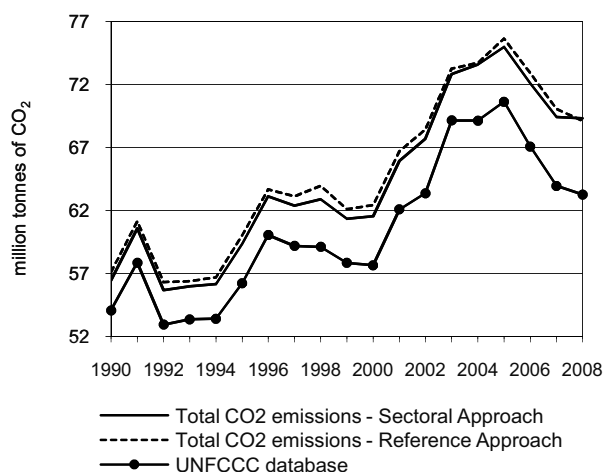


Figure 5. Electricity generation by fuel

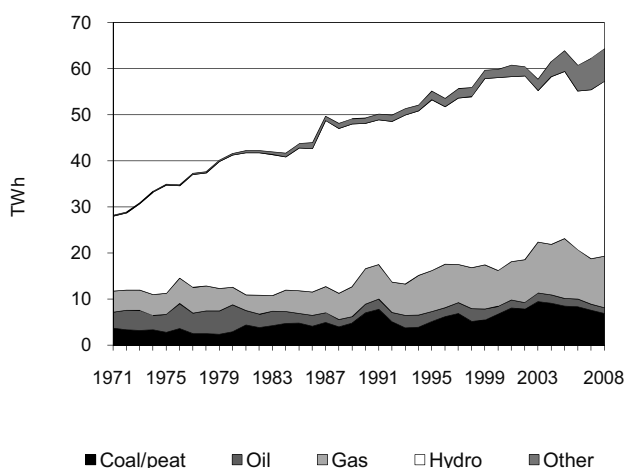
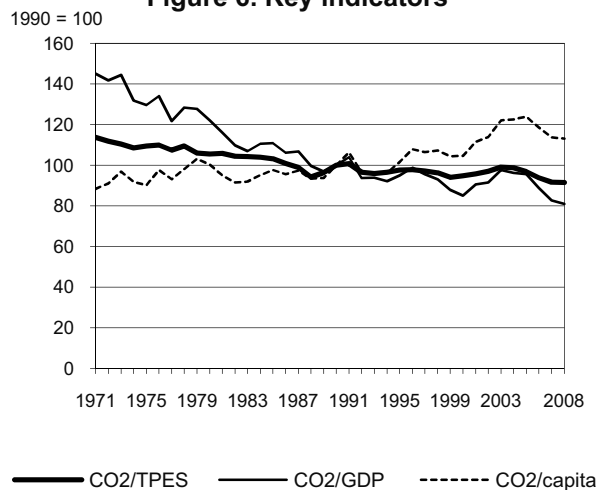


Figure 6. Key indicators



Austria

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	56.47	59.37	61.56	74.97	72.08	69.41	69.32	22.7%
CO ₂ Reference Approach (Mt of CO ₂)	57.12	60.06	62.45	75.64	72.91	70.05	69.12	21.0%
TPES (PJ)	1 038	1 118	1 194	1 423	1 411	1 392	1 392	34.2%
TPES (Mtoe)	24.78	26.70	28.52	33.99	33.69	33.25	33.25	34.2%
GDP (billion 2000 USD)	149.00	165.04	191.20	206.90	214.06	221.66	226.20	51.8%
GDP PPP (billion 2000 USD)	179.64	198.98	230.52	249.45	258.08	267.24	272.71	51.8%
Population (millions)	7.68	7.95	8.01	8.23	8.27	8.30	8.34	8.6%
CO ₂ / TPES (t CO ₂ per TJ)	54.4	53.1	51.6	52.7	51.1	49.9	49.8	-8.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.38	0.36	0.32	0.36	0.34	0.31	0.31	-19.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.31	0.30	0.27	0.30	0.28	0.26	0.25	-19.1%
CO ₂ / population (t CO ₂ per capita)	7.36	7.47	7.68	9.11	8.72	8.36	8.31	13.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	15.15	34.51	17.25	2.42	69.32	22.7%
Main activity producer elec. and heat	4.40	0.65	4.44	0.51	10.00	-4.3%
Unallocated autoproducers	3.08	0.59	1.11	0.42	5.20	47.0%
Other energy industries	5.37	2.21	0.86	-	8.43	45.6%
Manufacturing industries and construction	1.88	3.15	6.14	1.40	12.57	24.7%
Transport	-	21.51	0.58	-	22.09	61.4%
<i>of which: road</i>	-	20.80	0.00	-	20.81	59.3%
Other	0.42	6.39	4.13	0.08	11.02	-14.8%
<i>of which: residential</i>	0.35	4.29	2.74	-	7.38	-24.9%
Reference Approach	14.40	35.05	17.25	2.42	69.12	21.0%
Diff. due to losses and/or transformation	- 0.77	0.62	-	-	- 0.16	
Statistical differences	0.02	- 0.07	0.00	- 0.00	- 0.05	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.78	-	-	1.78	117.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	20.80	59.3%	22.4	22.4
Manufacturing industries - gas	6.14	40.8%	6.6	29.1
Other energy industries - coal/peat	5.37	77.9%	5.8	34.9
Main activity prod. elec. and heat - gas	4.44	35.0%	4.8	39.6
Main activity prod. elec. and heat - coal/peat	4.40	-24.6%	4.7	44.4
Residential - oil	4.29	-18.8%	4.6	49.0
Manufacturing industries - oil	3.15	21.6%	3.4	52.4
Unallocated autoproducers - coal/peat	3.08	109.7%	3.3	55.7
Residential - gas	2.74	53.7%	3.0	58.7
Other energy industries - oil	2.21	16.1%	2.4	61.1
Non-specified other - oil	2.10	-11.5%	2.3	63.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>69.32</i>	<i>22.7%</i>	<i>74.8</i>	<i>74.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Azerbaijan

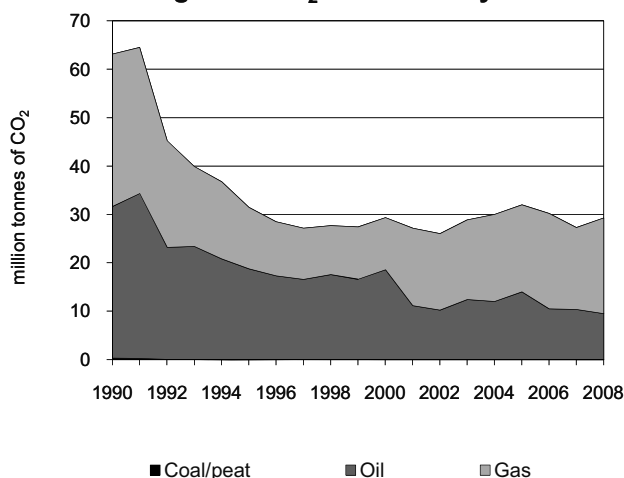
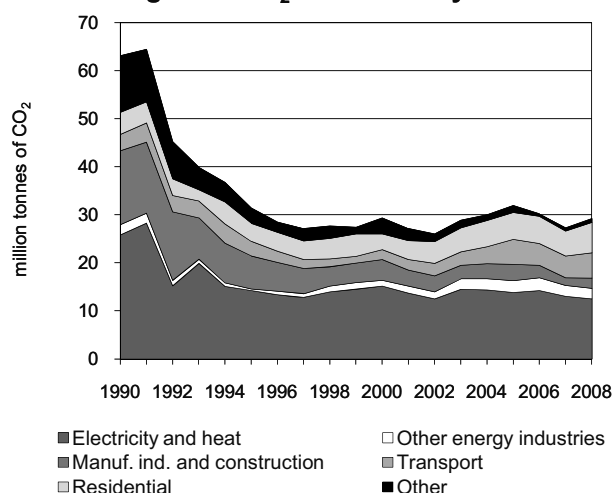
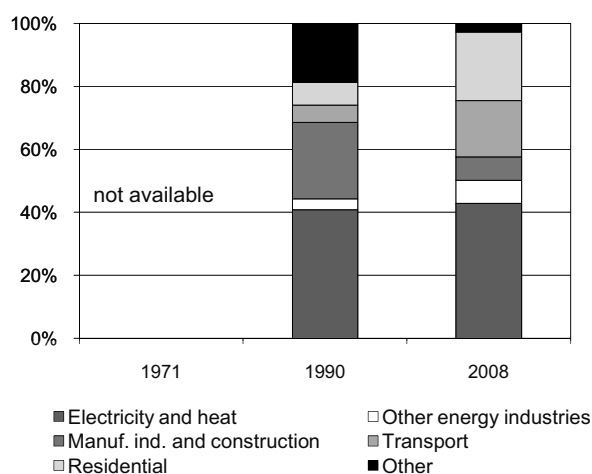
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

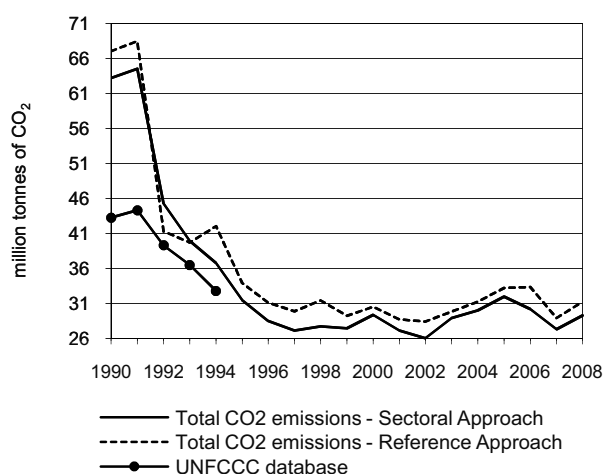


Figure 5. Electricity generation by fuel

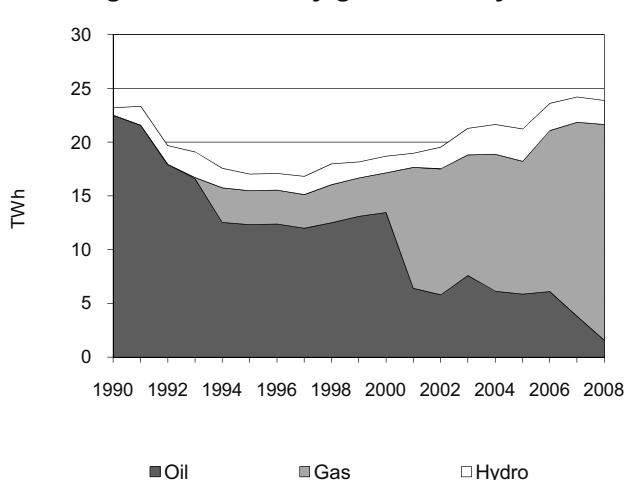
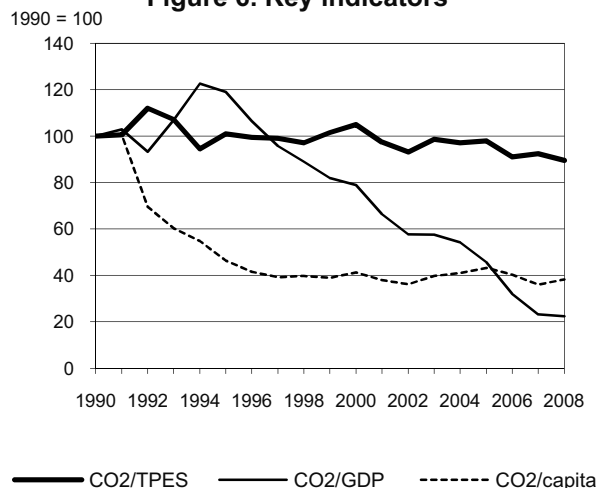


Figure 6. Key indicators



Azerbaijan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	63.20	31.48	29.37	31.99	30.23	27.32	29.28	-53.7%
CO ₂ Reference Approach (Mt of CO ₂)	67.05	33.89	30.53	33.21	33.37	28.95	31.27	-53.4%
TPES (PJ)	1 082	534	479	559	568	506	560	-48.3%
TPES (Mtoe)	25.84	12.75	11.43	13.35	13.58	12.08	13.37	-48.3%
GDP (billion 2000 USD)	8.95	3.75	5.27	9.93	13.35	16.70	18.50	106.6%
GDP PPP (billion 2000 USD)	33.83	14.16	19.92	37.51	50.45	63.09	69.90	106.6%
Population (millions)	7.16	7.69	8.05	8.39	8.49	8.58	8.68	21.2%
CO ₂ / TPES (t CO ₂ per TJ)	58.4	59.0	61.3	57.2	53.2	54.0	52.3	-10.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	7.06	8.40	5.57	3.22	2.26	1.64	1.58	-77.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.87	2.22	1.47	0.85	0.60	0.43	0.42	-77.6%
CO ₂ / population (t CO ₂ per capita)	8.83	4.10	3.65	3.81	3.56	3.18	3.37	-61.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	9.54	19.74	-	29.28	-53.7%
Main activity producer elec. and heat	-	1.38	9.99	-	11.37	-56.0%
Unallocated autoproducers	-	0.03	1.16	-	1.19	x
Other energy industries	-	1.18	0.98	-	2.16	0.6%
Manufacturing industries and construction	-	0.70	1.46	-	2.17	-85.9%
Transport	-	5.23	0.00	-	5.24	52.8%
<i>of which: road</i>	-	4.82	-	-	4.82	53.4%
Other	-	1.01	6.15	-	7.17	-56.3%
<i>of which: residential</i>	-	0.32	6.03	-	6.35	38.7%
Reference Approach	-	10.10	21.16	-	31.27	-53.4%
Diff. due to losses and/or transformation	-	0.45	1.43	-	1.87	
Statistical differences	-	0.11	0.00	-	0.11	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	1.31	-	-	1.31	84.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	9.99	-3.6%	11.5	11.5
Residential - gas	6.03	31.8%	6.9	18.4
Road - oil	4.82	59.6%	5.5	23.9
Manufacturing industries - gas	1.46	-89.6%	1.7	25.6
Main activity prod. elec. and heat - oil	1.38	-91.0%	1.6	27.2
Other energy industries - oil	1.18	-45.1%	1.4	28.5
Unallocated autoproducers - gas	1.16	x	1.3	29.9
Other energy industries - gas	0.98	x	1.1	31.0
Manufacturing industries - oil	0.70	-45.9%	0.8	31.8
Non-specified other - oil	0.70	-92.6%	0.8	32.6
Other transport - oil	0.42	x	0.5	33.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>29.28</i>	<i>-53.7%</i>	<i>33.6</i>	<i>33.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bahrain

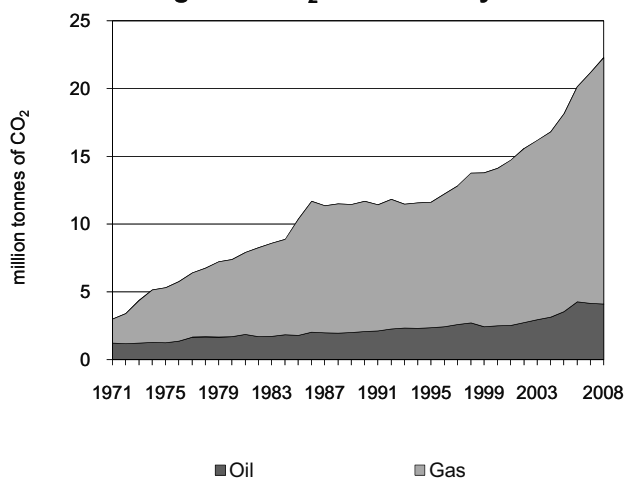
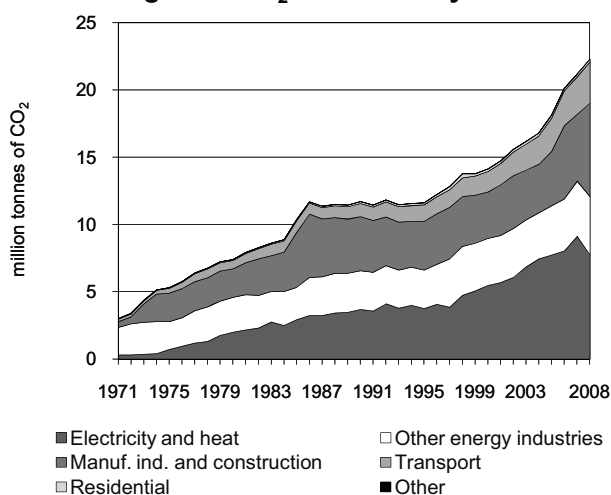
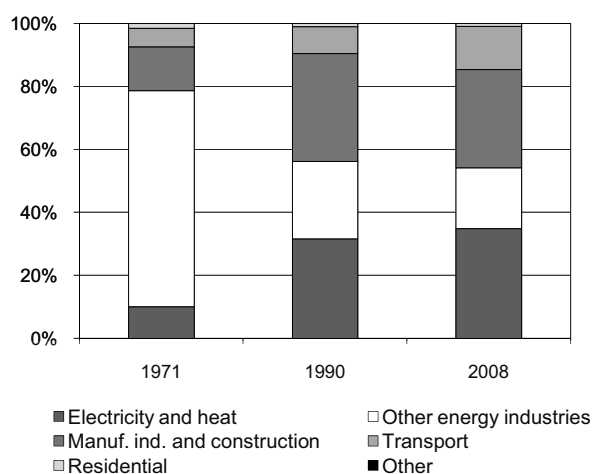
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

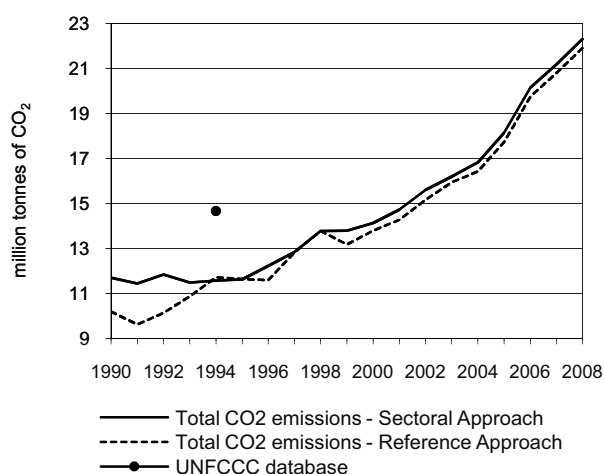


Figure 5. Electricity generation by fuel

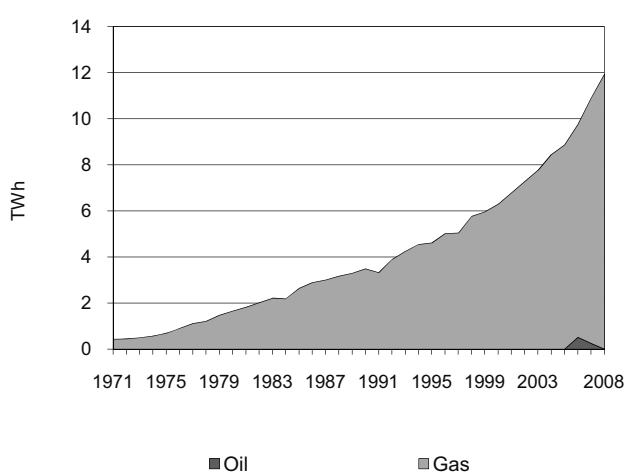
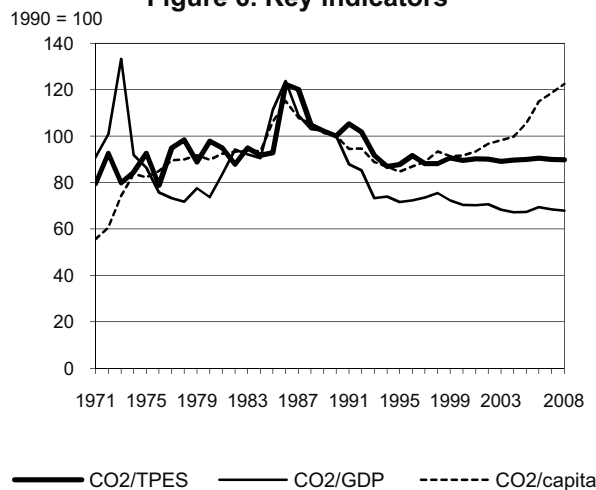


Figure 6. Key indicators



Bahrain

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	11.70	11.63	14.13	18.15	20.14	21.19	22.30	90.6%
CO ₂ Reference Approach (Mt of CO ₂)	10.20	11.65	13.79	17.73	19.74	20.80	21.91	114.9%
TPES (PJ)	182	206	246	314	346	367	386	112.1%
TPES (Mtoe)	4.35	4.93	5.86	7.50	8.27	8.75	9.23	112.1%
GDP (billion 2000 USD)	4.65	6.45	7.97	10.71	11.53	12.30	13.05	180.8%
GDP PPP (billion 2000 USD)	6.09	8.46	10.45	14.04	15.12	16.12	17.11	180.9%
Population (millions)	0.49	0.58	0.65	0.73	0.74	0.75	0.77	55.6%
CO ₂ / TPES (t CO ₂ per TJ)	64.2	56.3	57.5	57.8	58.2	57.8	57.7	-10.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.52	1.80	1.77	1.69	1.75	1.72	1.71	-32.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.92	1.37	1.35	1.29	1.33	1.31	1.30	-32.1%
CO ₂ / population (t CO ₂ per capita)	23.73	20.11	21.74	25.03	27.26	28.14	29.08	22.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	4.11	18.20	-	22.30	90.6%
Main activity producer elec. and heat	-	0.01	7.76	-	7.77	110.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	0.82	3.50	-	4.32	49.8%
Manufacturing industries and construction	-	-	6.94	-	6.94	73.2%
Transport	-	3.07	-	-	3.07	209.6%
<i>of which: road</i>	-	3.03	-	-	3.03	206.1%
Other	-	0.21	-	-	0.21	69.2%
<i>of which: residential</i>	-	0.21	-	-	0.21	69.2%
Reference Approach	-	3.71	18.20	-	21.91	114.9%
Diff. due to losses and/or transformation	-	- 0.39	-	-	- 0.39	
Statistical differences	-	-	-	-	-	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	1.84	-	-	1.84	28.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	7.76	110.1%	30.0	30.0
Manufacturing industries - gas	6.94	73.2%	26.8	56.7
Other energy industries - gas	3.50	82.3%	13.5	70.2
Road - oil	3.03	206.1%	11.7	81.9
Other energy industries - oil	0.82	-14.8%	3.2	85.1
Residential - oil	0.21	69.2%	0.8	85.9
Other transport - oil	0.03	x	0.1	86.1
Main activity prod. elec. and heat - oil	0.01	x	0.0	86.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>22.30</i>	<i>90.6%</i>	<i>86.1</i>	<i>86.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bangladesh

Figure 1. CO₂ emissions by fuel

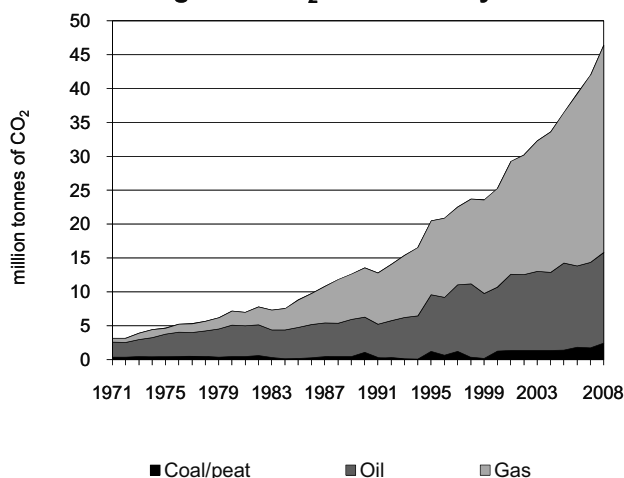


Figure 2. CO₂ emissions by sector

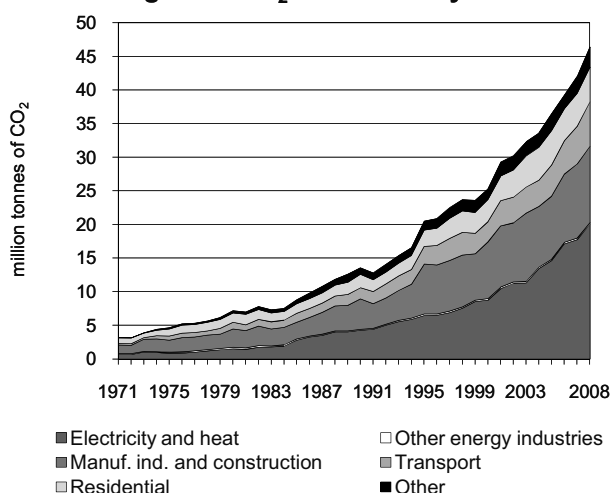


Figure 3. CO₂ emissions by sector

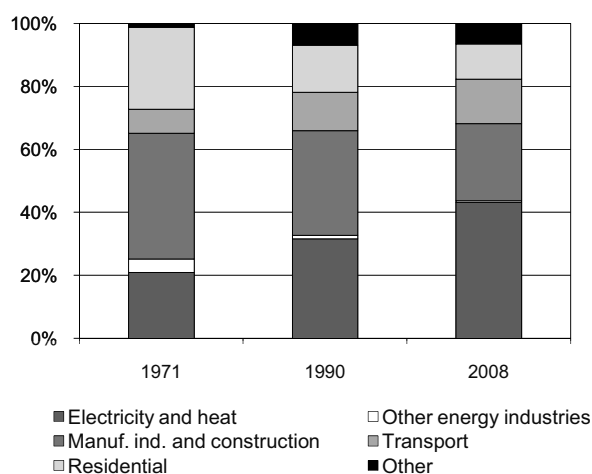


Figure 4. Reference vs Sectoral Approach

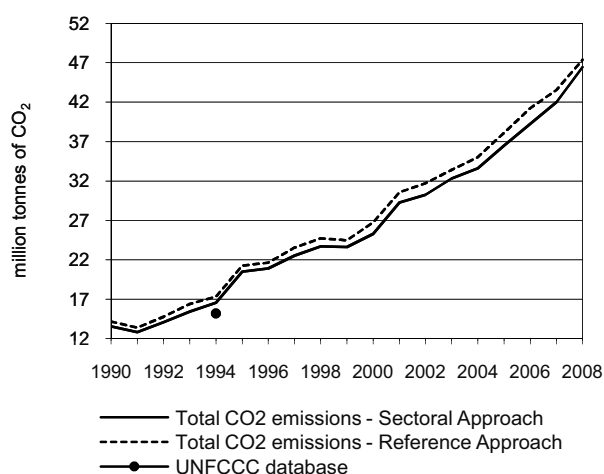


Figure 5. Electricity generation by fuel

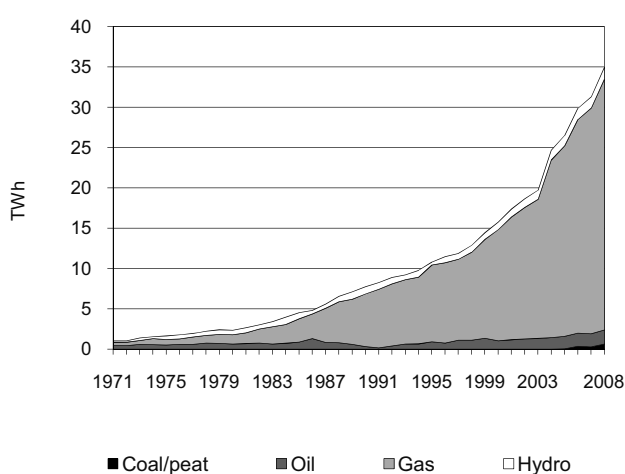
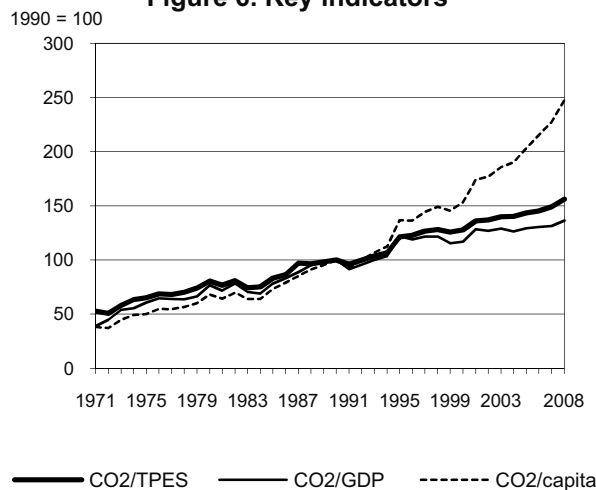


Figure 6. Key indicators



Bangladesh

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	13.56	20.51	25.30	36.49	39.26	42.04	46.44	242.4%
CO ₂ Reference Approach (Mt of CO ₂)	14.13	21.27	26.74	38.12	41.25	43.56	47.37	235.1%
TPES (PJ)	533	666	779	1 000	1 063	1 109	1 170	119.4%
TPES (Mtoe)	12.74	15.90	18.60	23.88	25.39	26.49	27.94	119.4%
GDP (billion 2000 USD)	29.47	36.54	47.10	61.36	65.42	69.63	73.95	150.9%
GDP PPP (billion 2000 USD)	124.50	154.34	198.96	259.19	276.38	294.14	312.41	150.9%
Population (millions)	115.63	128.09	140.77	153.12	155.46	157.75	160.00	38.4%
CO ₂ / TPES (t CO ₂ per TJ)	25.4	30.8	32.5	36.5	36.9	37.9	39.7	56.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.46	0.56	0.54	0.59	0.60	0.60	0.63	36.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.13	0.13	0.14	0.14	0.14	0.15	36.5%
CO ₂ / population (t CO ₂ per capita)	0.12	0.16	0.18	0.24	0.25	0.27	0.29	147.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	2.44	13.40	30.60	-	46.44	242.4%
Main activity producer elec. and heat	0.03	1.94	12.83	-	14.81	245.5%
Unallocated autoproducers	0.85	-	4.39	-	5.25	x
Other energy industries	-	0.23	-	-	0.23	49.7%
Manufacturing industries and construction	1.55	1.88	7.94	-	11.37	152.4%
Transport	-	5.34	1.25	-	6.59	299.4%
<i>of which: road</i>	-	3.81	1.25	-	5.06	325.1%
Other	-	4.01	4.19	-	8.19	176.1%
<i>of which: residential</i>	-	1.39	3.78	-	5.17	154.1%
Reference Approach	2.44	13.45	31.48	-	47.37	235.1%
Diff. due to losses and/or transformation	-	0.09	0.88	-	0.97	
Statistical differences	- 0.00	- 0.04	-	-	- 0.04	
<i>Memo: international marine bunkers</i>	-	0.11	-	-	0.11	78.6%
<i>Memo: international aviation bunkers</i>	-	0.65	-	-	0.65	139.5%

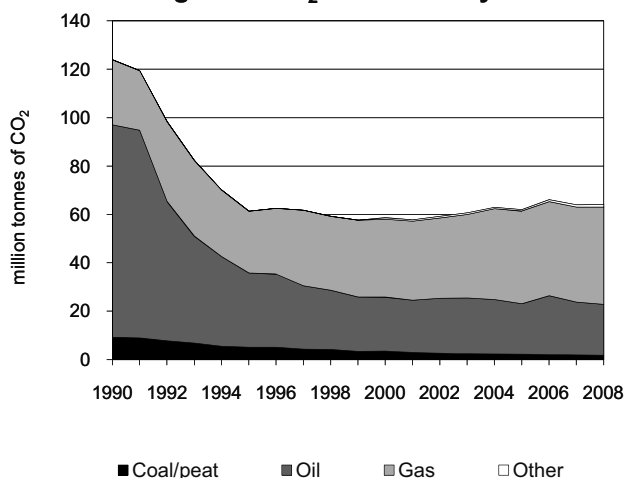
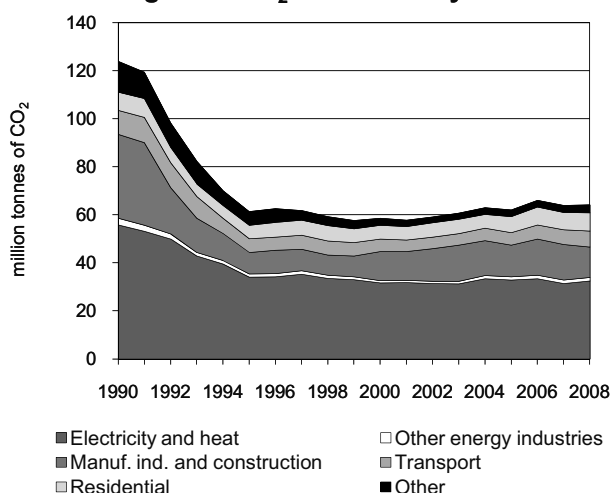
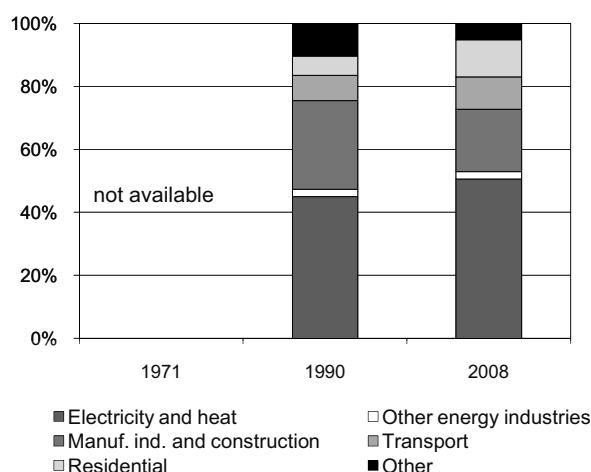
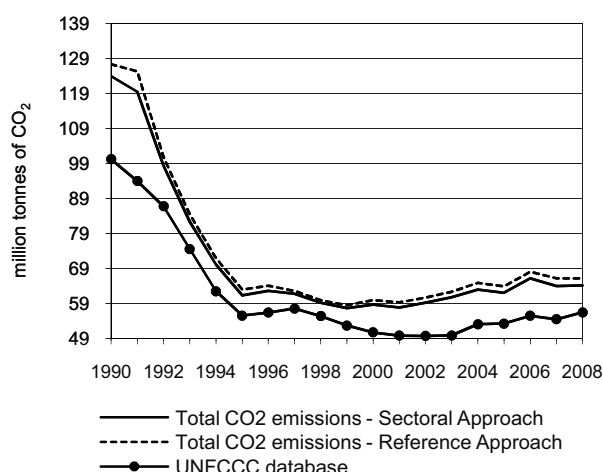
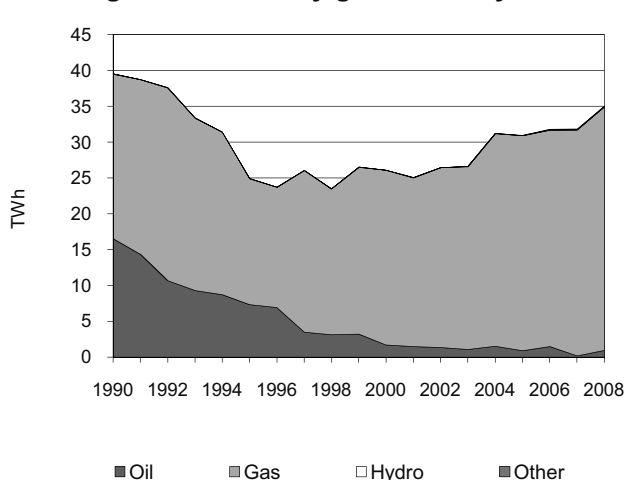
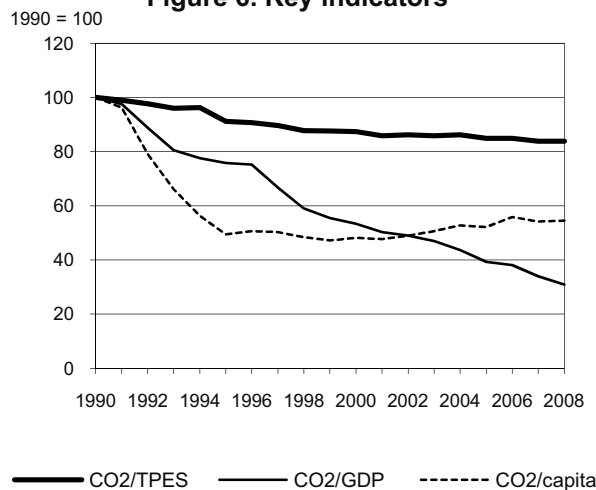
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	12.83	227.3%	7.5	7.5
Manufacturing industries - gas	7.94	195.7%	4.6	12.1
Unallocated autoproducers - gas	4.39	x	2.6	14.6
Road - oil	3.81	220.1%	2.2	16.8
Residential - gas	3.78	614.7%	2.2	19.0
Non-specified other - oil	2.62	239.1%	1.5	20.5
Main activity prod. elec. and heat - oil	1.94	429.8%	1.1	21.7
Manufacturing industries - oil	1.88	157.9%	1.1	22.8
Manufacturing industries - coal/peat	1.55	42.1%	0.9	23.7
Other transport - oil	1.53	233.1%	0.9	24.6
Residential - oil	1.39	-7.6%	0.8	25.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>46.44</i>	<i>242.4%</i>	<i>27.0</i>	<i>27.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Belarus

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Belarus

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	123.97	61.38	58.68	62.08	66.16	63.99	64.19	-48.2%
CO ₂ Reference Approach (Mt of CO ₂)	127.35	63.02	59.96	63.93	68.11	66.15	66.22	-48.0%
TPES (PJ)	1 907	1 036	1 033	1 125	1 199	1 175	1 178	-38.2%
TPES (Mtoe)	45.55	24.75	24.68	26.87	28.63	28.06	28.15	-38.2%
GDP (billion 2000 USD)	14.36	9.38	12.74	18.29	20.12	21.85	24.04	67.4%
GDP PPP (billion 2000 USD)	54.19	35.38	48.05	69.02	75.92	82.45	90.69	67.4%
Population (millions)	10.19	10.19	10.01	9.78	9.73	9.70	9.68	-5.0%
CO ₂ / TPES (t CO ₂ per TJ)	65.0	59.2	56.8	55.2	55.2	54.5	54.5	-16.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	8.63	6.54	4.61	3.39	3.29	2.93	2.67	-69.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.29	1.73	1.22	0.90	0.87	0.78	0.71	-69.1%
CO ₂ / population (t CO ₂ per capita)	12.17	6.02	5.87	6.35	6.80	6.60	6.63	-45.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1.90	21.03	40.15	1.11	64.19	-48.2%
Main activity producer elec. and heat	0.13	1.11	25.36	-	26.60	-31.6%
Unallocated autoproducers	0.37	0.65	4.71	0.17	5.90	-65.3%
Other energy industries	0.05	1.18	-	0.23	1.46	-48.5%
Manufacturing industries and construction	0.30	5.77	5.97	0.71	12.75	-63.4%
Transport	0.03	5.44	1.09	-	6.57	-34.4%
<i>of which: road</i>	-	4.33	0.04	-	4.37	-46.4%
Other	1.03	6.87	3.02	-	10.92	-46.5%
<i>of which: residential</i>	0.80	4.01	2.80	-	7.61	0.0%
Reference Approach	2.29	22.37	40.45	1.11	66.22	-48.0%
Diff. due to losses and/or transformation	0.38	1.26	0.30	-	1.94	
Statistical differences	-	0.09	-	-	0.09	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	25.36	83.3%	25.7	25.7
Manufacturing industries - gas	5.97	35.3%	6.0	31.7
Manufacturing industries - oil	5.77	-80.8%	5.8	37.5
Unallocated autoproducers - gas	4.71	15.4%	4.8	42.3
Road - oil	4.33	-46.9%	4.4	46.7
Residential - oil	4.01	108.1%	4.1	50.7
Non-specified other - oil	2.87	-61.3%	2.9	53.6
Residential - gas	2.80	59.2%	2.8	56.5
Other energy industries - oil	1.18	-57.7%	1.2	57.7
Other transport - oil	1.12	-33.3%	1.1	58.8
Main activity prod. elec. and heat - oil	1.11	-95.6%	1.1	59.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>64.19</i>	<i>-48.2%</i>	<i>65.0</i>	<i>65.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Belgium

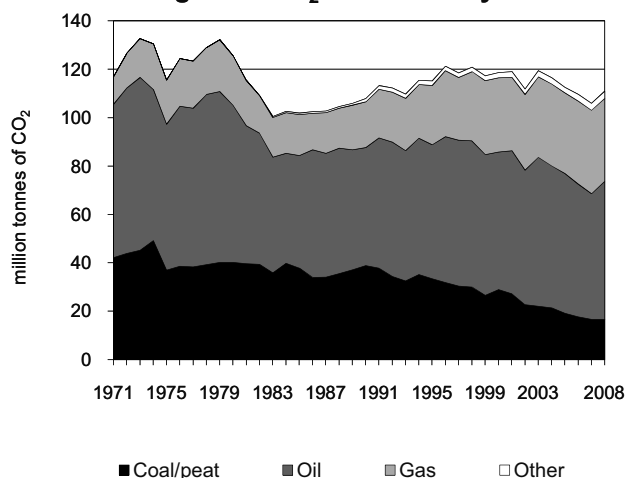
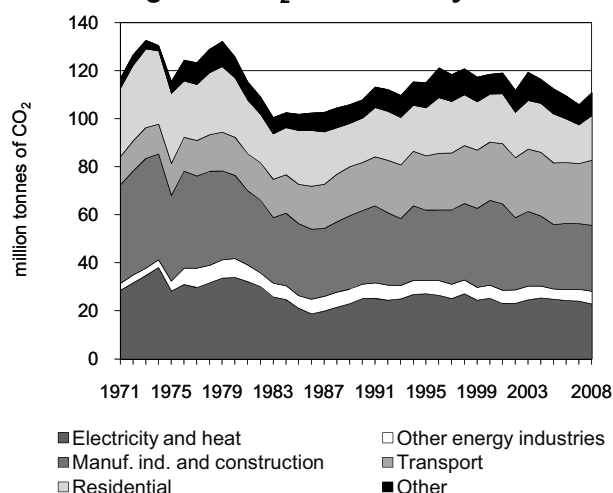
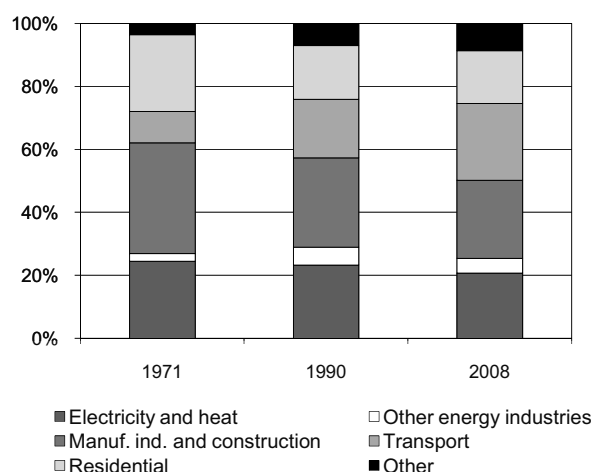
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

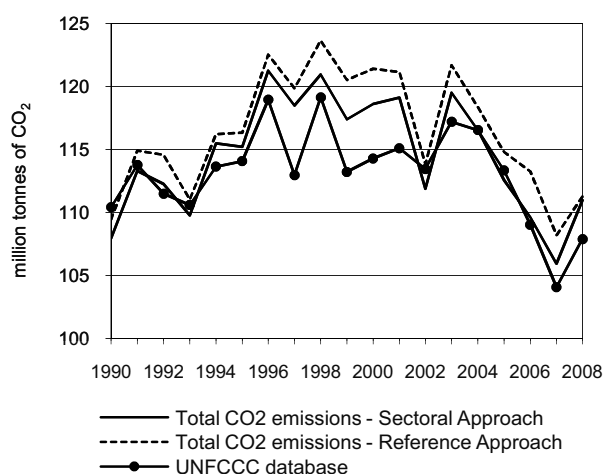


Figure 5. Electricity generation by fuel

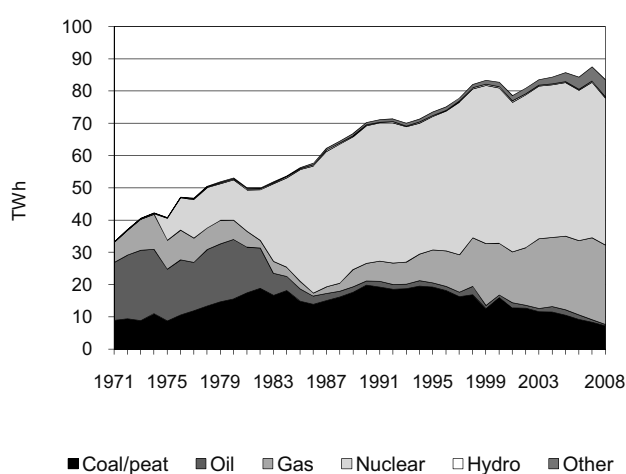
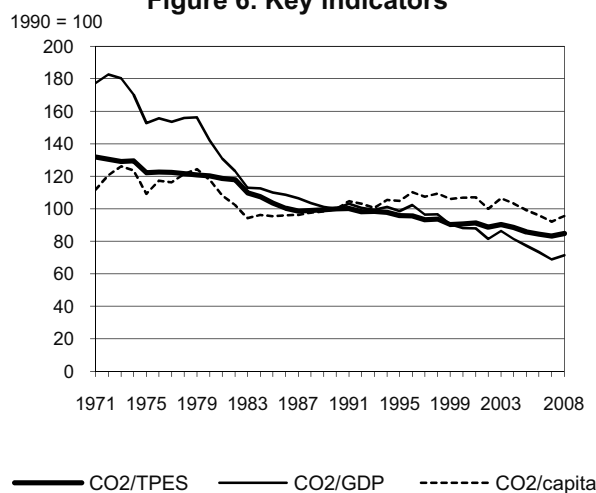


Figure 6. Key indicators



Belgium

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	107.95	115.21	118.60	112.57	109.62	105.95	110.96	2.8%
CO ₂ Reference Approach (Mt of CO ₂)	109.45	116.31	121.40	114.80	113.26	108.19	111.27	1.7%
TPES (PJ)	2 022	2 251	2 450	2 457	2 433	2 388	2 453	21.3%
TPES (Mtoe)	48.28	53.77	58.51	58.68	58.11	57.03	58.58	21.3%
GDP (billion 2000 USD)	186.52	201.85	232.37	251.37	258.33	265.93	268.69	44.1%
GDP PPP (billion 2000 USD)	227.21	245.90	283.08	306.22	314.69	323.96	327.32	44.1%
Population (millions)	9.97	10.14	10.25	10.47	10.54	10.62	10.71	7.4%
CO ₂ / TPES (t CO ₂ per TJ)	53.4	51.2	48.4	45.8	45.1	44.4	45.2	-15.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.58	0.57	0.51	0.45	0.42	0.40	0.41	-28.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.48	0.47	0.42	0.37	0.35	0.33	0.34	-28.6%
CO ₂ / population (t CO ₂ per capita)	10.83	11.37	11.58	10.75	10.40	9.97	10.36	-4.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	16.70	57.03	34.27	2.95	110.96	2.8%
Main activity producer elec. and heat	7.68	0.18	9.12	2.45	19.43	-11.5%
Unallocated autoproducers	2.73	0.06	0.76	-	3.54	11.5%
Other energy industries	0.28	4.82	0.16	-	5.26	-13.5%
Manufacturing industries and construction	5.39	9.38	12.17	0.50	27.44	-10.5%
Transport	-	27.09	-	-	27.09	35.4%
<i>of which: road</i>	-	26.56	-	-	26.56	37.9%
Other	0.62	15.51	12.06	-	28.20	8.2%
<i>of which: residential</i>	0.62	10.28	7.71	-	18.60	0.8%
Reference Approach	16.81	57.53	33.98	2.95	111.27	1.7%
Diff. due to losses and/or transformation	0.56	1.74	-	-	2.30	
Statistical differences	- 0.45	- 1.25	- 0.29	-	- 1.99	
<i>Memo: international marine bunkers</i>	-	30.49	-	-	30.49	136.3%
<i>Memo: international aviation bunkers</i>	-	6.05	-	-	6.05	114.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	26.56	37.9%	19.5	19.5
Manufacturing industries - gas	12.17	64.7%	8.9	28.4
Residential - oil	10.28	-3.2%	7.5	35.9
Manufacturing industries - oil	9.38	19.1%	6.9	42.8
Main activity prod. elec. and heat - gas	9.12	237.5%	6.7	49.5
Residential - gas	7.71	32.9%	5.7	55.2
Main activity prod. elec. and heat - coal/peat	7.68	-57.1%	5.6	60.8
Manufacturing industries - coal/peat	5.39	-64.5%	4.0	64.8
Non-specified other - oil	5.24	1.2%	3.8	68.6
Other energy industries - oil	4.82	14.4%	3.5	72.1
Non-specified other - gas	4.36	80.1%	3.2	75.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>110.96</i>	<i>2.8%</i>	<i>81.4</i>	<i>81.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Benin

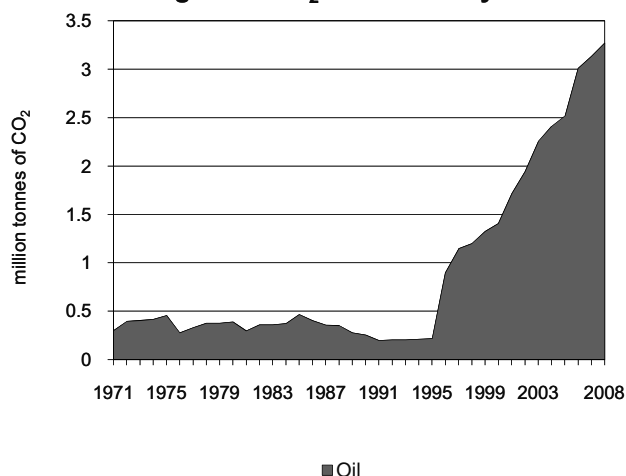
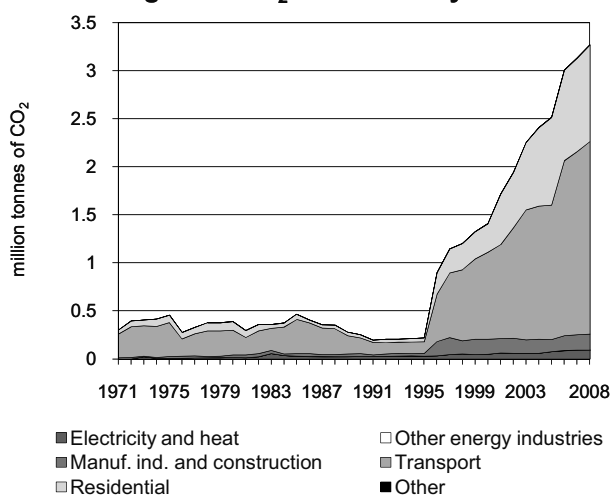
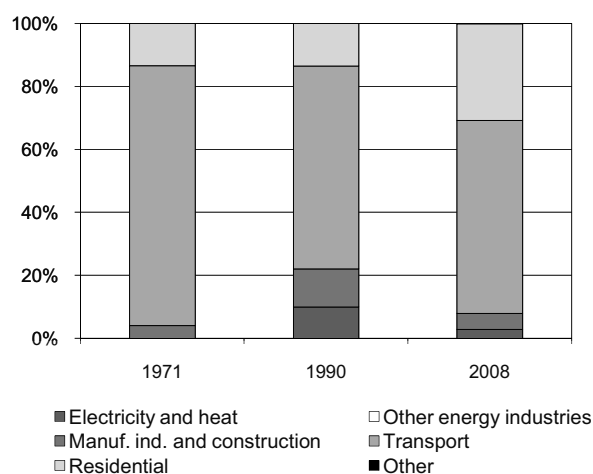
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

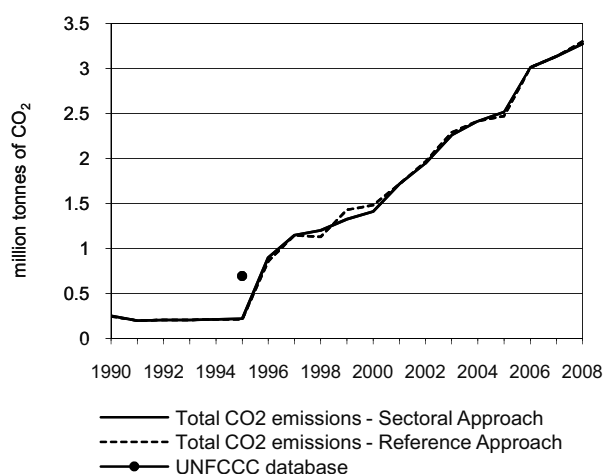


Figure 5. Electricity generation by fuel

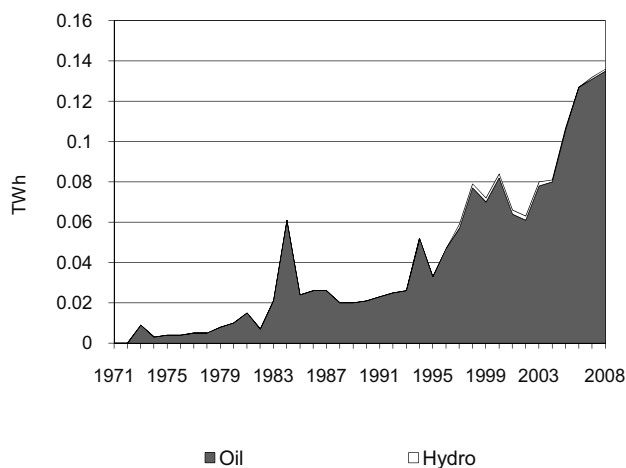
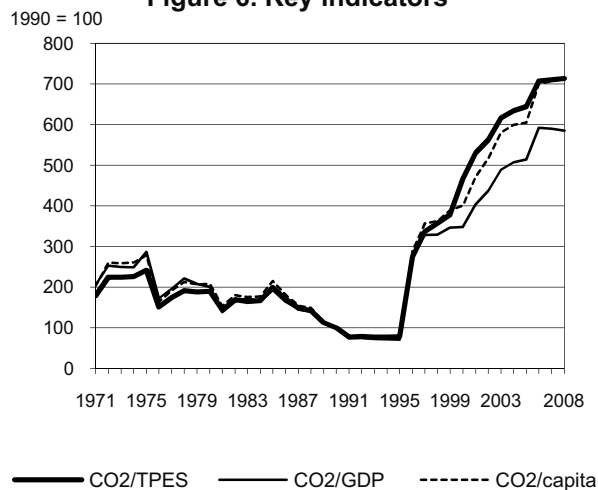


Figure 6. Key indicators



Benin

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	0.25	0.22	1.41	2.52	3.01	3.14	3.27	+
CO ₂ Reference Approach (Mt of CO ₂)	0.24	0.21	1.48	2.47	3.01	3.14	3.30	+
TPES (PJ)	70	77	83	107	117	121	126	80.9%
TPES (Mtoe)	1.66	1.85	1.98	2.56	2.79	2.89	3.01	80.9%
GDP (billion 2000 USD)	1.41	1.74	2.26	2.73	2.83	2.96	3.11	120.4%
GDP PPP (billion 2000 USD)	4.39	5.41	7.02	8.48	8.81	9.21	9.68	120.4%
Population (millions)	4.80	5.72	6.66	7.87	8.13	8.39	8.66	80.6%
CO ₂ / TPES (t CO ₂ per TJ)	3.7	2.8	17.0	23.5	25.8	25.9	26.0	613.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.18	0.13	0.63	0.92	1.06	1.06	1.05	485.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.06	0.04	0.20	0.30	0.34	0.34	0.34	484.8%
CO ₂ / population (t CO ₂ per capita)	0.05	0.04	0.21	0.32	0.37	0.37	0.38	614.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	3.27	-	-	3.27	+
Main activity producer elec. and heat	-	0.08	-	-	0.08	200.4%
Unallocated autoproducers	-	0.02	-	-	0.02	x
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	-	0.17	-	-	0.17	440.6%
Transport	-	2.00	-	-	2.00	+
<i>of which: road</i>	-	2.00	-	-	2.00	+
Other	-	1.01	-	-	1.01	+
<i>of which: residential</i>	-	1.01	-	-	1.01	+
Reference Approach	-	3.30	-	-	3.30	+
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	0.02	-	-	0.02	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.08	-	-	0.08	62.5%

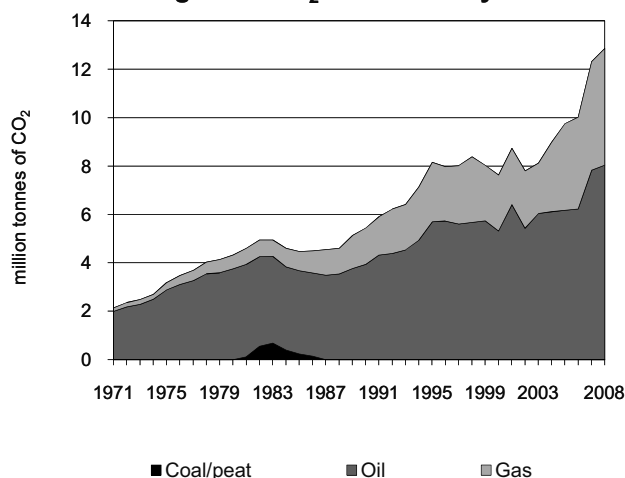
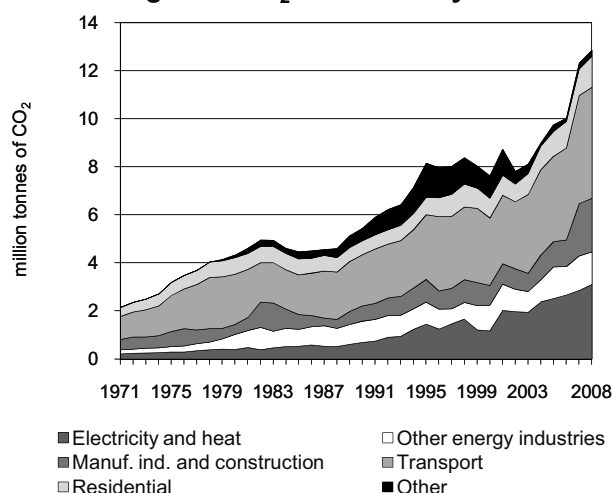
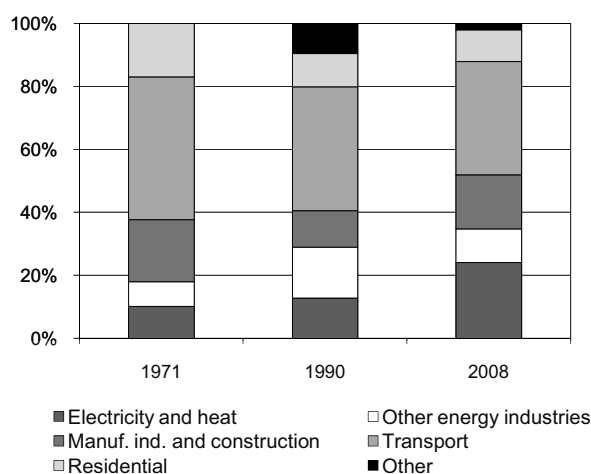
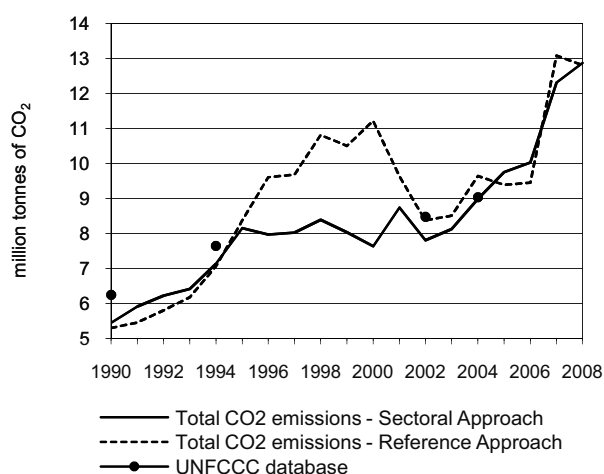
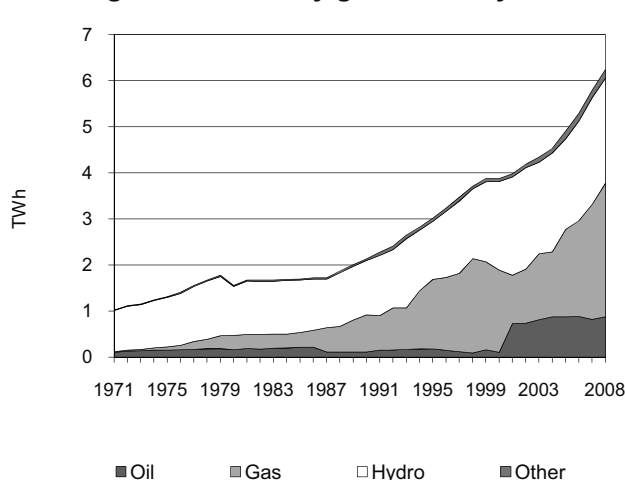
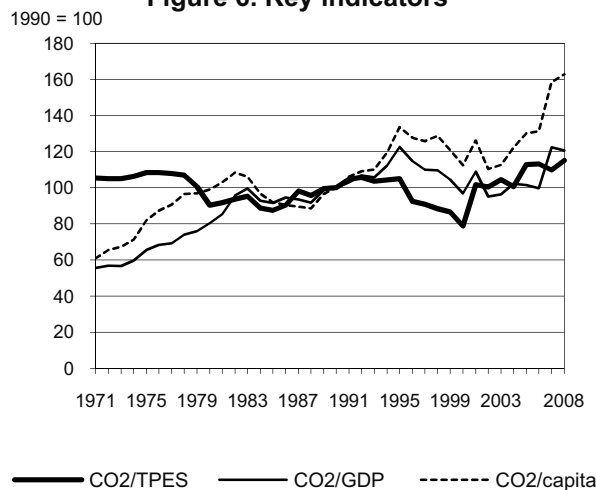
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	2.00	+	18.3	18.3
Residential - oil	1.01	+	9.2	27.4
Manufacturing industries - oil	0.17	440.6%	1.5	29.0
Main activity prod. elec. and heat - oil	0.08	200.4%	0.7	29.7
Unallocated autoproducers - oil	0.02	x	0.2	29.8
Non-specified other - oil	0.00	x	0.0	29.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	3.27	+	29.9	29.9

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bolivia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Bolivia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	5.45	8.16	7.63	9.76	10.03	12.32	12.87	136.3%
CO ₂ Reference Approach (Mt of CO ₂)	5.30	8.37	11.22	9.39	9.45	13.08	12.80	141.6%
TPES (PJ)	116	166	207	184	189	239	238	105.3%
TPES (Mtoe)	2.77	3.96	4.94	4.41	4.51	5.71	5.69	105.3%
GDP (billion 2000 USD)	5.80	7.09	8.40	10.25	10.72	10.72	11.37	96.1%
GDP PPP (billion 2000 USD)	13.72	16.77	19.86	24.23	25.33	25.33	26.89	96.1%
Population (millions)	6.67	7.48	8.32	9.18	9.35	9.52	9.68	45.2%
CO ₂ / TPES (t CO ₂ per TJ)	46.9	49.2	36.9	52.9	53.0	51.5	54.0	15.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.94	1.15	0.91	0.95	0.94	1.15	1.13	20.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.49	0.38	0.40	0.40	0.49	0.48	20.5%
CO ₂ / population (t CO ₂ per capita)	0.82	1.09	0.92	1.06	1.07	1.29	1.33	62.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	8.04	4.82	-	12.87	136.3%
Main activity producer elec. and heat	-	1.04	1.97	-	3.01	377.9%
Unallocated autoproducers	-	0.08	0.02	-	0.10	37.4%
Other energy industries	-	0.25	1.11	-	1.37	55.1%
Manufacturing industries and construction	-	1.12	1.10	-	2.22	253.2%
Transport	-	4.10	0.52	-	4.63	115.9%
<i>of which: road</i>	-	3.64	0.52	-	4.16	136.1%
Other	-	1.45	0.10	-	1.55	41.9%
<i>of which: residential</i>	-	1.24	0.05	-	1.29	124.7%
Reference Approach	-	8.49	4.31	-	12.80	141.6%
Diff. due to losses and/or transformation	-	0.40	0.41	-	0.81	
Statistical differences	-	0.05	- 0.92	-	- 0.87	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	3.64	106.5%	5.8	5.8
Main activity prod. elec. and heat - gas	1.97	238.4%	3.1	8.9
Residential - oil	1.24	115.3%	2.0	10.8
Manufacturing industries - oil	1.12	360.5%	1.8	12.6
Other energy industries - gas	1.11	108.4%	1.8	14.4
Manufacturing industries - gas	1.10	185.6%	1.7	16.1
Main activity prod. elec. and heat - oil	1.04	+	1.6	17.8
Road - gas	0.52	x	0.8	18.6
Other transport - oil	0.46	21.7%	0.7	19.3
Other energy industries - oil	0.25	-27.4%	0.4	19.7
Non-specified other - oil	0.22	-58.0%	0.3	20.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>12.87</i>	<i>136.3%</i>	<i>20.4</i>	<i>20.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bosnia and Herzegovina

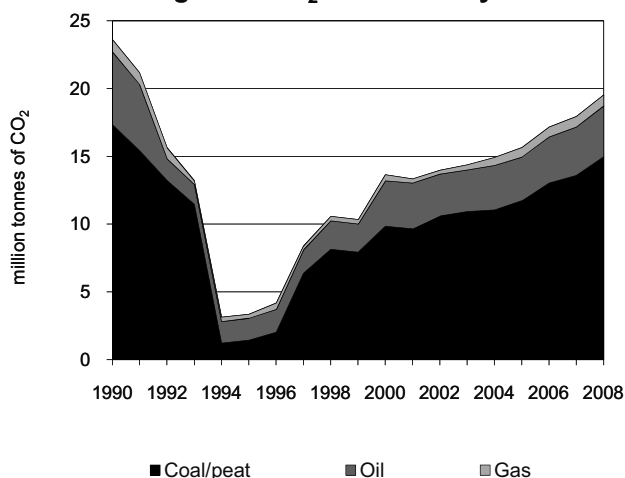
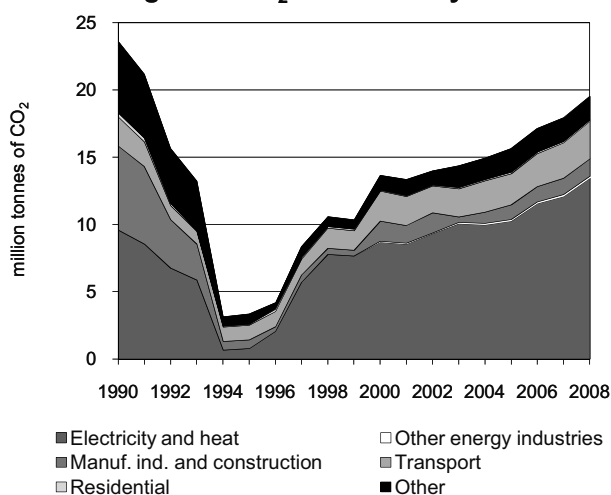
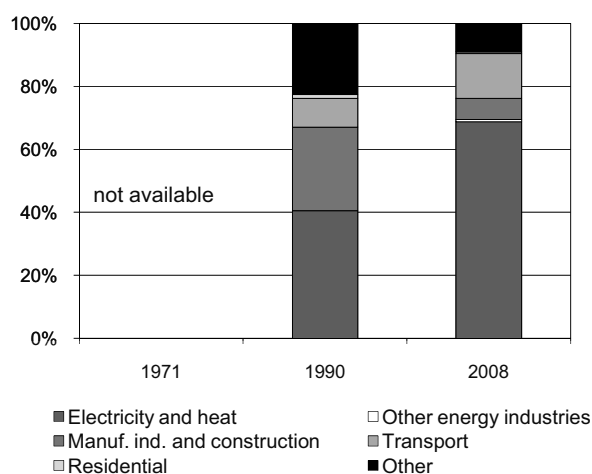
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

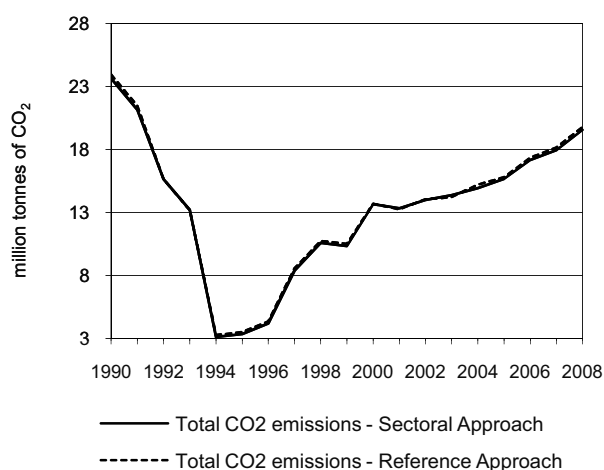


Figure 5. Electricity generation by fuel

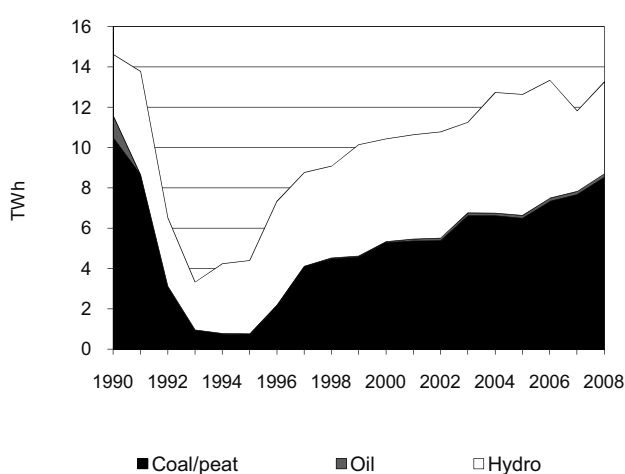
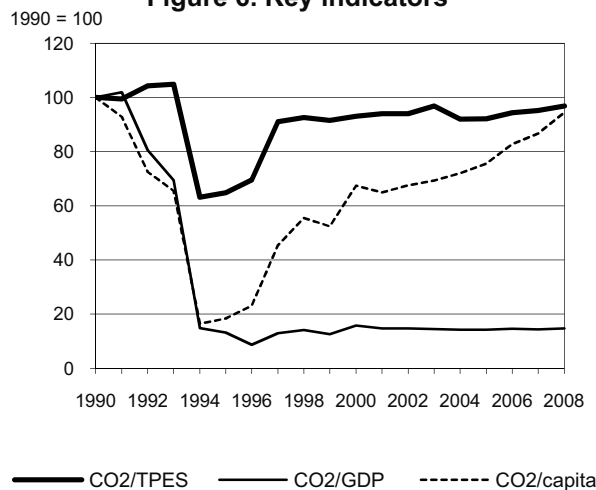


Figure 6. Key indicators



Bosnia and Herzegovina

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	23.63	3.35	13.66	15.66	17.17	17.96	19.55	-17.3%
CO ₂ Reference Approach (Mt of CO ₂)	23.94	3.50	13.69	15.80	17.36	18.16	19.78	-17.4%
TPES (PJ)	293	64	182	211	226	234	251	-14.5%
TPES (Mtoe)	7.01	1.53	4.36	5.05	5.39	5.60	5.99	-14.5%
GDP (billion 2000 USD)	1.50	1.62	5.51	7.01	7.45	7.96	8.44	461.6%
GDP PPP (billion 2000 USD)	6.11	6.60	22.39	28.52	30.29	32.36	34.31	461.7%
Population (millions)	4.31	3.33	3.69	3.78	3.78	3.78	3.77	-12.4%
CO ₂ / TPES (t CO ₂ per TJ)	80.5	52.2	74.9	74.1	76.0	76.6	77.9	-3.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	15.73	2.06	2.48	2.23	2.30	2.26	2.32	-85.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	3.87	0.51	0.61	0.55	0.57	0.55	0.57	-85.3%
CO ₂ / population (t CO ₂ per capita)	5.49	1.01	3.70	4.14	4.54	4.75	5.18	-5.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	14.99	3.75	0.81	-	19.55	-17.3%
Main activity producer elec. and heat	13.01	-	0.15	-	13.15	53.4%
Unallocated autoproducers	0.11	0.17	-	-	0.29	-71.7%
Other energy industries	0.06	0.08	-	-	0.15	x
Manufacturing industries and construction	0.72	0.03	0.54	-	1.30	-79.2%
Transport	-	2.78	-	-	2.78	28.2%
<i>of which: road</i>	-	2.73	-	-	2.73	26.1%
Other	1.08	0.67	0.12	-	1.87	-66.7%
<i>of which: residential</i>	-	-	0.10	-	0.10	-63.9%
Reference Approach	15.18	3.77	0.82	-	19.78	-17.4%
Diff. due to losses and/or transformation	0.17	0.03	0.01	-	0.21	
Statistical differences	0.02	-	-	-	0.02	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-100.0%

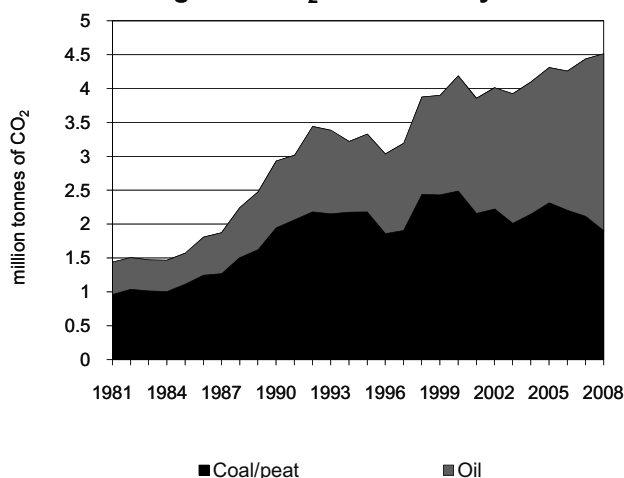
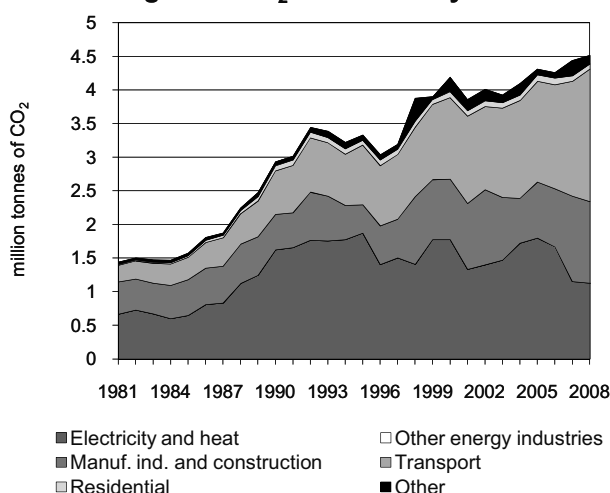
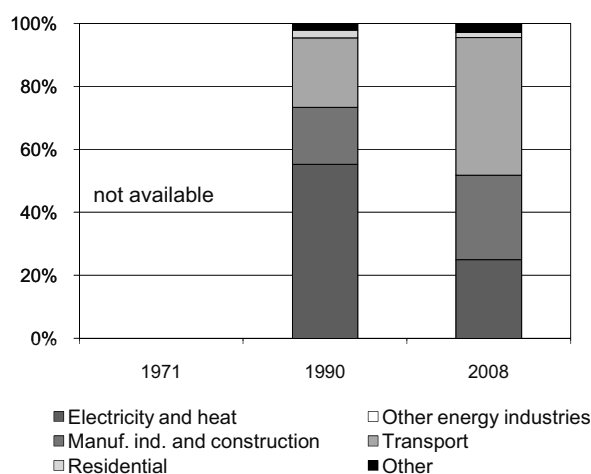
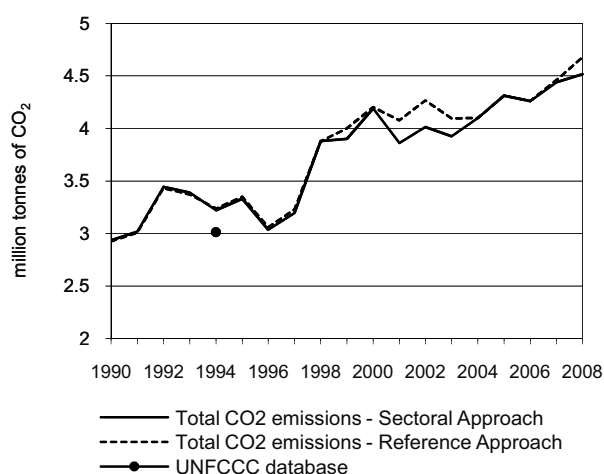
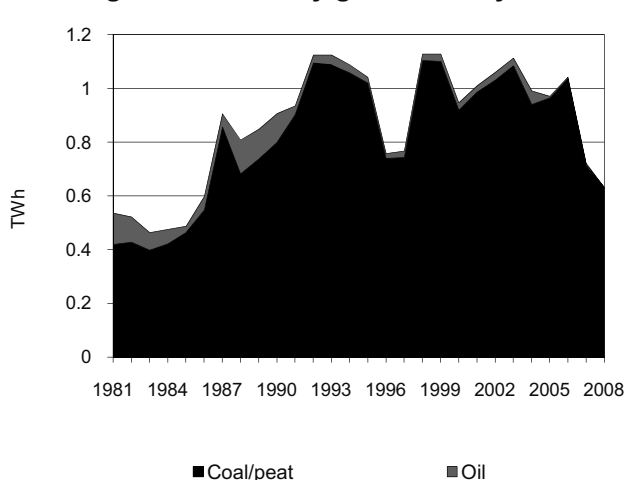
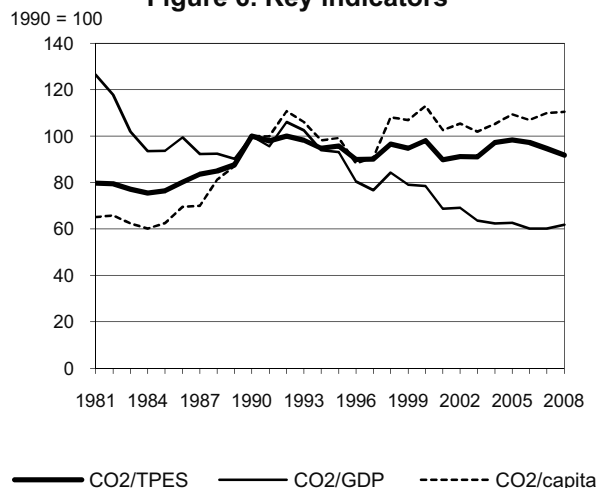
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	13.01	53.7%	52.1	52.1
Road - oil	2.73	26.1%	11.0	63.1
Non-specified other sectors - coal/peat	1.08	-79.7%	4.3	67.4
Manufacturing industries - coal/peat	0.72	-79.6%	2.9	70.3
Non-specified other - oil	0.67	x	2.7	73.0
Manufacturing industries - gas	0.54	-25.2%	2.2	75.2
Unallocated autoproducers - oil	0.17	-82.8%	0.7	75.9
Main activity prod. elec. and heat - gas	0.15	34.3%	0.6	76.5
Unallocated autoproducers - coal/peat	0.11	x	0.5	76.9
Residential - gas	0.10	44.1%	0.4	77.3
Other energy industries - oil	0.08	x	0.3	77.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>19.55</i>	<i>-17.3%</i>	<i>78.3</i>	<i>78.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Botswana

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Botswana

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.93	3.33	4.19	4.31	4.26	4.44	4.52	53.9%
CO ₂ Reference Approach (Mt of CO ₂)	2.93	3.35	4.20	4.31	4.26	4.46	4.68	59.8%
TPES (PJ)	53	63	77	79	79	84	89	67.9%
TPES (Mtoe)	1.26	1.50	1.84	1.89	1.88	2.02	2.12	67.9%
GDP (billion 2000 USD)	3.40	4.14	6.18	7.96	8.20	8.54	8.46	149.1%
GDP PPP (billion 2000 USD)	8.05	9.82	14.65	18.88	19.44	20.26	20.06	149.1%
Population (millions)	1.37	1.57	1.73	1.84	1.86	1.88	1.91	39.4%
CO ₂ / TPES (t CO ₂ per TJ)	55.6	53.2	54.5	54.6	54.1	52.6	51.0	-8.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.86	0.81	0.68	0.54	0.52	0.52	0.53	-38.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.36	0.34	0.29	0.23	0.22	0.22	0.23	-38.2%
CO ₂ / population (t CO ₂ per capita)	2.15	2.13	2.42	2.35	2.29	2.36	2.37	10.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1.91	2.61	-	-	4.52	53.9%
Main activity producer elec. and heat	1.13	-	-	-	1.13	-12.3%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	0.74	0.47	-	-	1.21	128.8%
Transport	-	1.97	-	-	1.97	204.5%
<i>of which: road</i>	-	1.93	-	-	1.93	221.9%
Other	0.04	0.17	-	-	0.20	51.3%
<i>of which: residential</i>	-	0.08	-	-	0.08	6.2%
Reference Approach	2.06	2.62	-	-	4.68	59.8%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.16	0.01	-	-	0.16	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.05	-	-	0.05	45.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	1.93	221.9%	14.9	14.9
Main activity prod. elec. and heat - coal/peat	1.13	-3.5%	8.7	23.7
Manufacturing industries - coal/peat	0.74	72.2%	5.7	29.4
Manufacturing industries - oil	0.47	373.7%	3.6	33.1
Non-specified other - oil	0.09	59.0%	0.7	33.8
Residential - oil	0.08	22.2%	0.6	34.4
Other transport - oil	0.04	-16.9%	0.3	34.7
Non-specified other sectors - coal/peat	0.04	650.3%	0.3	34.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.52</i>	<i>53.9%</i>	<i>34.9</i>	<i>34.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Brazil

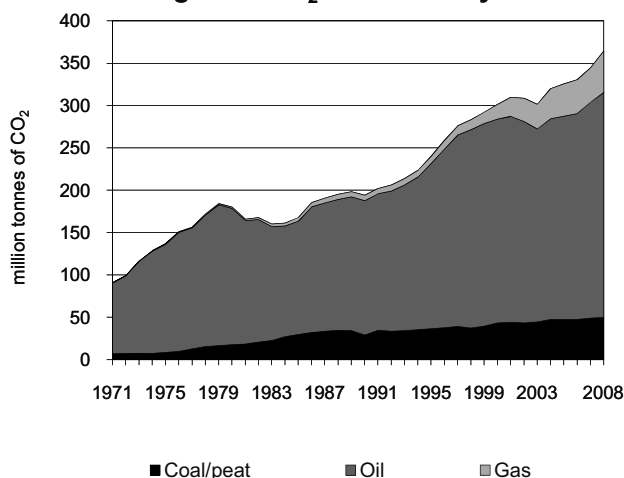
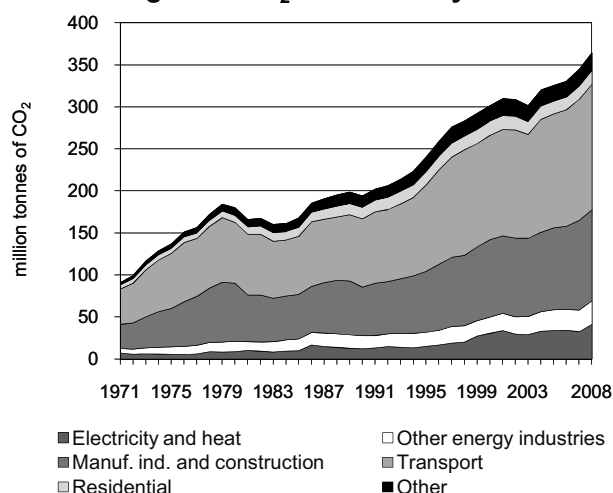
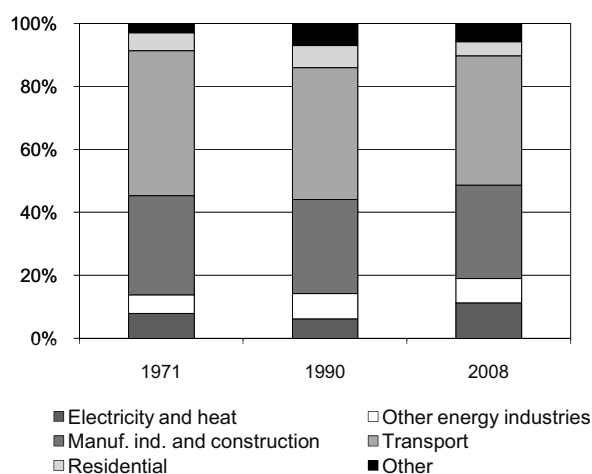
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

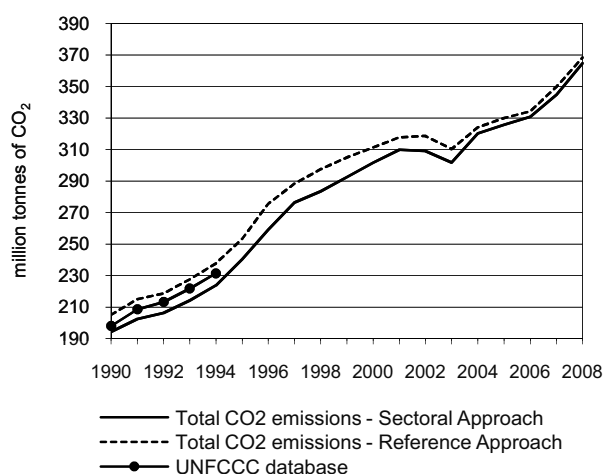


Figure 5. Electricity generation by fuel

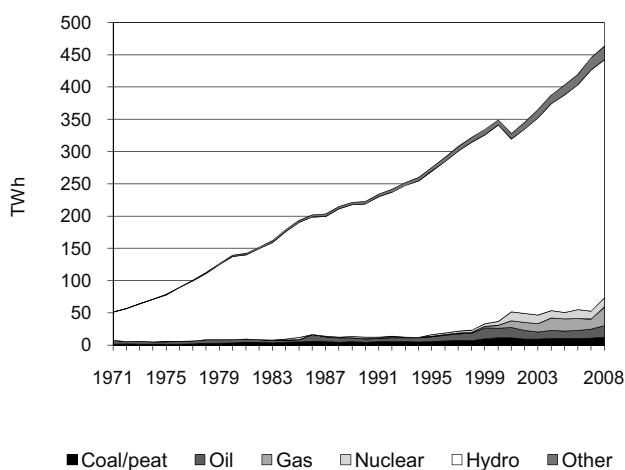
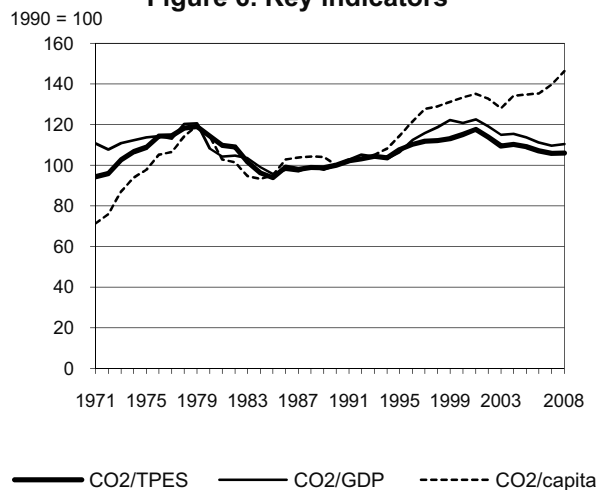


Figure 6. Key indicators



Brazil

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	194.27	240.42	301.58	325.72	330.71	344.75	364.61	87.7%
CO ₂ Reference Approach (Mt of CO ₂)	204.99	253.44	311.31	330.04	334.30	349.81	368.30	79.7%
TPES (PJ)	5 872	6 746	7 920	9 020	9 335	9 855	10 405	77.2%
TPES (Mtoe)	140.25	161.12	189.16	215.44	222.97	235.39	248.53	77.2%
GDP (billion 2000 USD)	501.77	583.63	644.70	739.61	768.97	812.57	853.82	70.2%
GDP PPP (billion 2000 USD)	968.41	1 126.39	1 244.26	1 427.44	1 484.10	1 568.24	1 647.85	70.2%
Population (millions)	149.57	161.69	174.17	186.08	188.16	190.12	191.97	28.3%
CO ₂ / TPES (t CO ₂ per TJ)	33.1	35.6	38.1	36.1	35.4	35.0	35.0	5.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.39	0.41	0.47	0.44	0.43	0.42	0.43	10.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.20	0.21	0.24	0.23	0.22	0.22	0.22	10.3%
CO ₂ / population (t CO ₂ per capita)	1.30	1.49	1.73	1.75	1.76	1.81	1.90	46.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	50.00	265.64	48.97	-	364.61	87.7%
Main activity producer elec. and heat	7.12	8.66	10.10	-	25.88	305.4%
Unallocated autoproducers	9.86	2.94	2.56	-	15.36	165.6%
Other energy industries	2.91	14.11	10.90	-	27.92	80.3%
Manufacturing industries and construction	29.98	58.59	19.75	-	108.32	86.9%
Transport	-	144.76	4.77	-	149.54	83.9%
<i>of which: road</i>	-	129.78	4.77	-	134.55	91.0%
Other	0.12	36.57	0.90	-	37.59	37.5%
<i>of which: residential</i>	-	15.82	0.51	-	16.33	18.8%
Reference Approach	53.78	265.47	49.04	-	368.30	79.7%
Diff. due to losses and/or transformation	3.02	- 0.10	0.29	-	3.21	
Statistical differences	0.77	- 0.06	- 0.22	-	0.48	
<i>Memo: international marine bunkers</i>	-	14.17	-	-	14.17	726.0%
<i>Memo: international aviation bunkers</i>	-	4.72	-	-	4.72	234.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	129.78	84.3%	10.9	10.9
Manufacturing industries - oil	58.59	63.8%	4.9	15.8
Manufacturing industries - coal/peat	29.98	68.3%	2.5	18.3
Non-specified other - oil	20.75	55.3%	1.7	20.0
Manufacturing industries - gas	19.75	351.7%	1.7	21.7
Residential - oil	15.82	17.9%	1.3	23.0
Other transport - oil	14.98	37.8%	1.3	24.2
Other energy industries - oil	14.11	30.4%	1.2	25.4
Other energy industries - gas	10.90	504.7%	0.9	26.3
Main activity prod. elec. and heat - gas	10.10	+	0.8	27.2
Unallocated autoproducers - coal/peat	9.86	156.8%	0.8	28.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>364.61</i>	<i>87.7%</i>	<i>30.5</i>	<i>30.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Brunei Darussalam

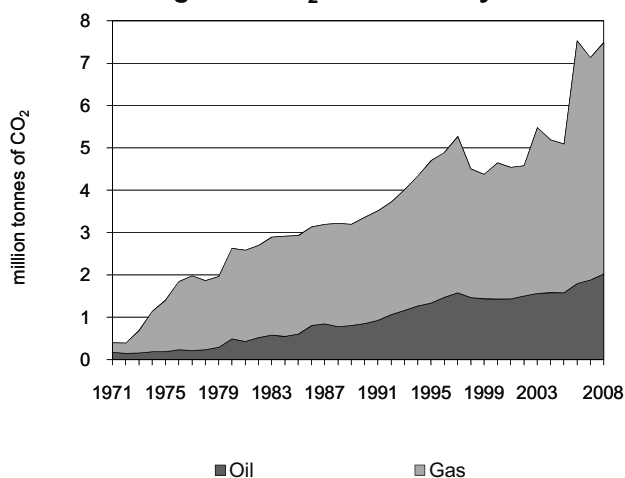
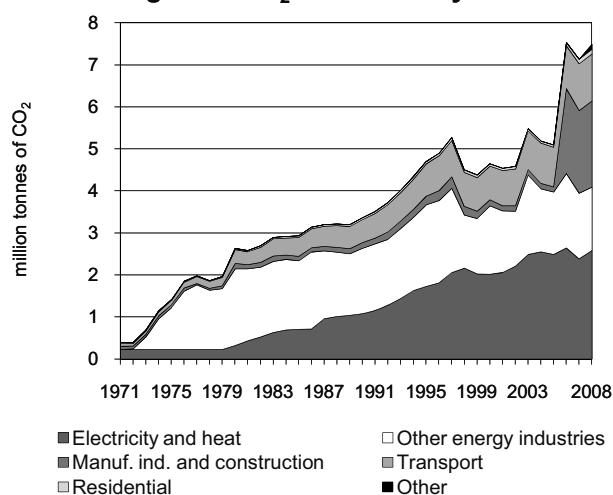
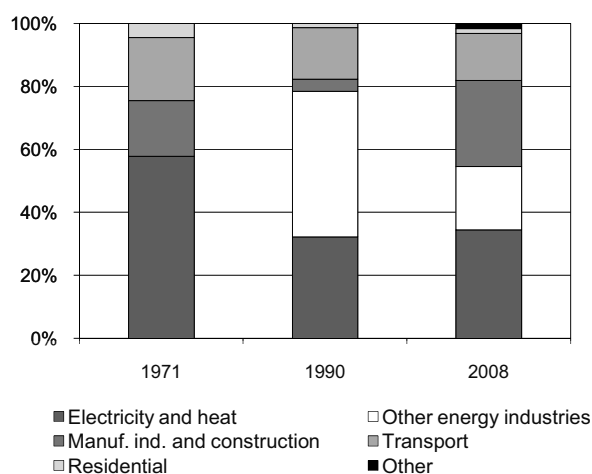
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

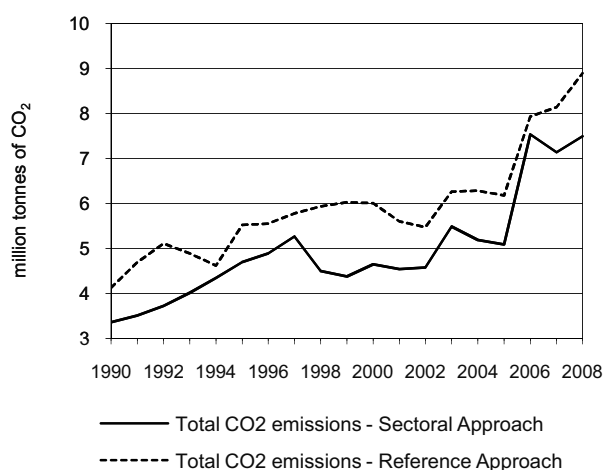


Figure 5. Electricity generation by fuel

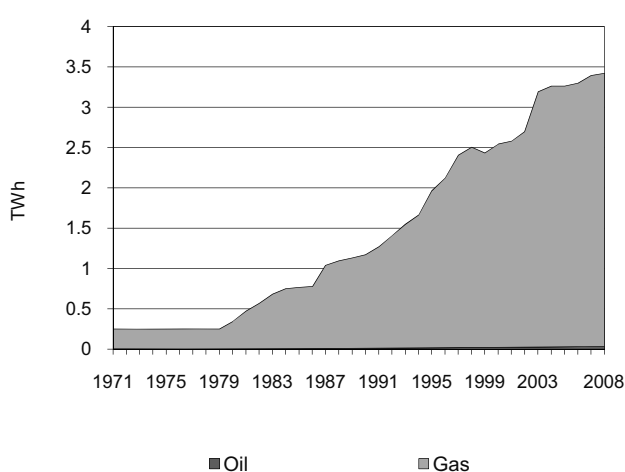
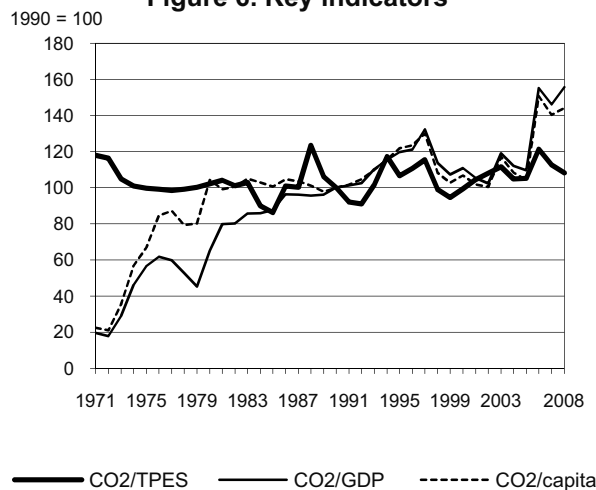


Figure 6. Key indicators



Brunei Darussalam

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3.36	4.70	4.65	5.09	7.53	7.13	7.49	122.8%
CO ₂ Reference Approach (Mt of CO ₂)	4.13	5.52	6.01	6.18	7.94	8.14	8.89	115.4%
TPES (PJ)	74	97	103	106	136	139	152	105.9%
TPES (Mtoe)	1.76	2.31	2.45	2.54	3.25	3.32	3.63	105.9%
GDP (billion 2000 USD)	4.81	5.62	6.00	6.65	6.94	6.99	6.88	43.1%
GDP PPP (billion 2000 USD)	5.74	6.71	7.16	7.94	8.29	8.34	8.21	43.0%
Population (millions)	0.26	0.30	0.33	0.37	0.38	0.39	0.40	54.5%
CO ₂ / TPES (t CO ₂ per TJ)	45.6	48.6	45.3	47.9	55.3	51.3	49.3	8.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.84	0.77	0.77	1.09	1.02	1.09	55.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.59	0.70	0.65	0.64	0.91	0.86	0.91	55.8%
CO ₂ / population (t CO ₂ per capita)	13.08	15.94	13.96	13.62	19.72	18.34	18.87	44.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	2.02	5.47	-	7.49	122.8%
Main activity producer elec. and heat	-	0.03	2.37	-	2.39	120.9%
Unallocated autoproducers	-	-	0.19	-	0.19	x
Other energy industries	-	0.48	1.03	-	1.51	-3.0%
Manufacturing industries and construction	-	0.23	1.82	-	2.05	+
Transport	-	1.12	-	-	1.12	104.6%
<i>of which: road</i>	-	1.12	-	-	1.12	104.6%
Other	-	0.17	0.07	-	0.24	419.1%
<i>of which: residential</i>	-	0.05	0.07	-	0.11	149.7%
Reference Approach	-	2.27	6.63	-	8.89	115.4%
Diff. due to losses and/or transformation	-	0.10	0.88	-	0.99	
Statistical differences	-	0.14	0.28	-	0.41	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.28	-	-	0.28	147.2%

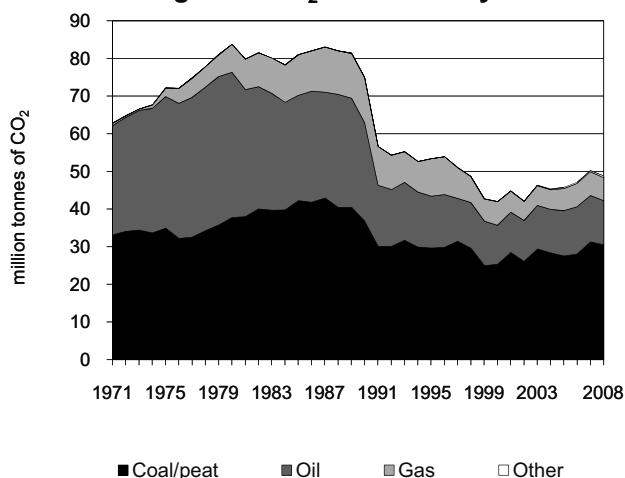
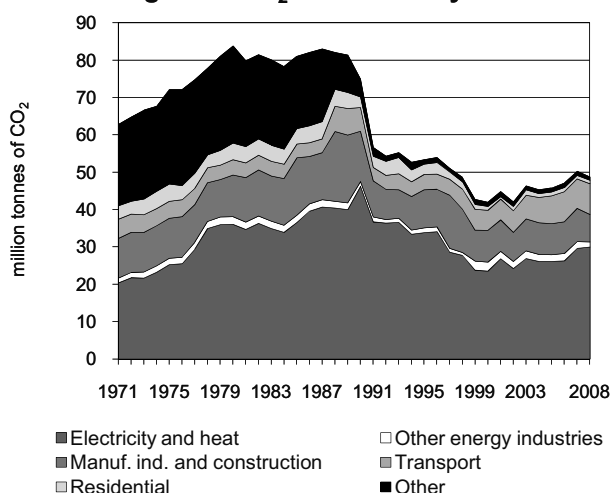
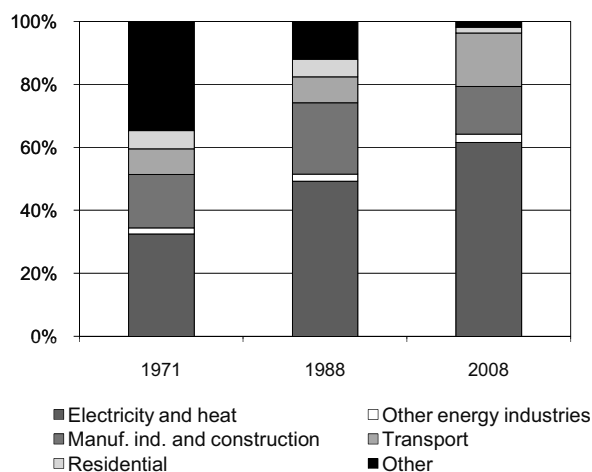
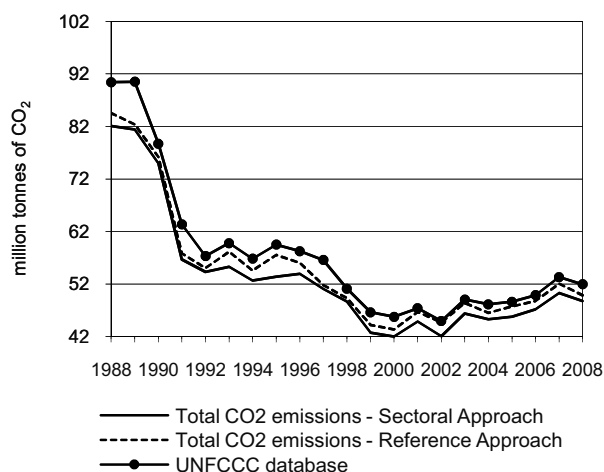
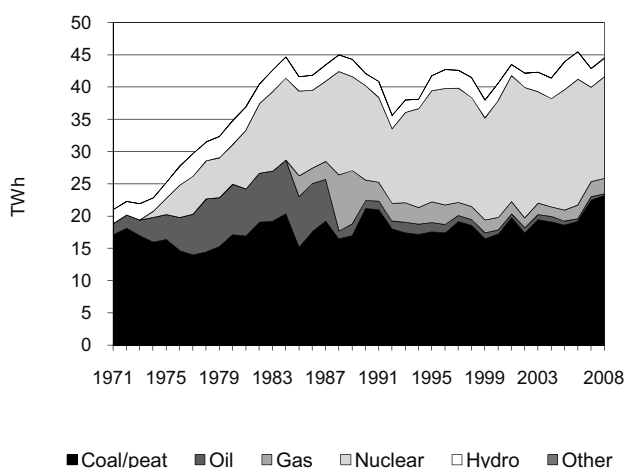
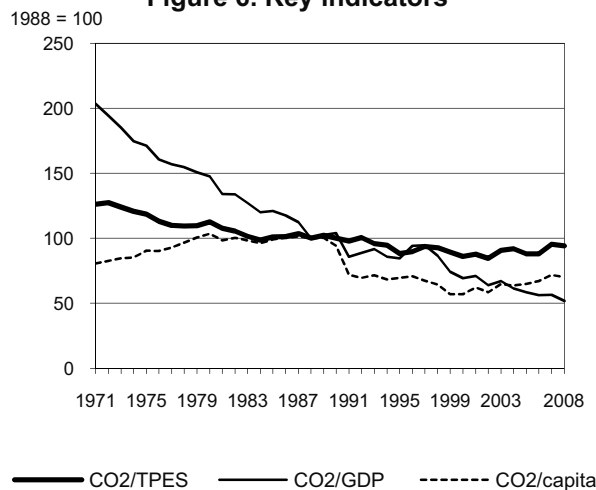
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.37	120.5%	15.2	15.2
Manufacturing industries - gas	1.82	x	11.6	26.8
Road - oil	1.12	104.6%	7.2	34.0
Other energy industries - gas	1.03	-28.3%	6.6	40.6
Other energy industries - oil	0.48	307.5%	3.1	43.6
Manufacturing industries - oil	0.23	74.4%	1.5	45.1
Unallocated autoproducers - gas	0.19	x	1.2	46.3
Non-specified other - oil	0.12	x	0.8	47.1
Residential - gas	0.07	x	0.4	47.5
Residential - oil	0.05	4.7%	0.3	47.8
Main activity prod. elec. and heat - oil	0.03	166.6%	0.2	48.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.49</i>	<i>122.8%</i>	<i>48.0</i>	<i>48.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Bulgaria

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Bulgaria *

Key indicators

	1988	1990	1995	2005	2006	2007	2008	% change 88-08
CO ₂ Sectoral Approach (Mt of CO ₂)	82.07	74.94	53.40	45.80	47.16	50.27	48.78	-40.6%
CO ₂ Reference Approach (Mt of CO ₂)	84.56	76.17	57.54	47.75	48.77	52.08	49.86	-41.0%
TPES (PJ)	1 312	1 196	967	833	856	842	828	-36.9%
TPES (Mtoe)	31.33	28.57	23.10	19.89	20.44	20.10	19.78	-36.9%
GDP (billion 2000 USD)	17.06	15.00	13.14	16.31	17.41	18.48	19.59	14.8%
GDP PPP (billion 2000 USD)	66.22	58.20	50.98	63.29	67.56	71.72	76.04	14.8%
Population (millions)	8.98	8.72	8.40	7.74	7.70	7.66	7.62	-15.1%
CO ₂ / TPES (t CO ₂ per TJ)	62.6	62.6	55.2	55.0	55.1	59.7	58.9	-5.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.81	5.00	4.06	2.81	2.71	2.72	2.49	-48.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.24	1.29	1.05	0.72	0.70	0.70	0.64	-48.2%
CO ₂ / population (t CO ₂ per capita)	9.14	8.60	6.36	5.92	6.13	6.56	6.40	-30.0%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Bulgaria is allowed to use 1988 as the base year.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 88-08
Sectoral Approach	30.52	11.77	6.14	0.36	48.78	-40.6%
Main activity producer elec. and heat	27.18	0.30	2.01	-	29.49	-23.7%
Unallocated autoproducers	0.14	0.09	0.29	0.02	0.54	-69.6%
Other energy industries	0.44	0.79	0.09	-	1.32	-28.3%
Manufacturing industries and construction	1.93	2.40	2.71	0.34	7.38	-60.4%
Transport	-	7.57	0.68	-	8.26	21.7%
<i>of which: road</i>	-	7.43	0.08	-	7.51	10.8%
Other	0.82	0.62	0.36	-	1.80	-87.5%
<i>of which: residential</i>	0.77	0.06	0.09	-	0.92	-79.6%
Reference Approach	30.53	12.52	6.45	0.36	49.86	-41.0%
Diff. due to losses and/or transformation	0.12	0.36	0.16	-	0.64	
Statistical differences	- 0.10	0.38	0.15	0.00	0.43	
<i>Memo: international marine bunkers</i>	-	0.38	-	-	0.38	-59.5%
<i>Memo: international aviation bunkers</i>	-	0.63	-	-	0.63	-50.5%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 88-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	27.18	13.7%	38.7	38.7
Road - oil	7.43	9.6%	10.6	49.3
Manufacturing industries - gas	2.71	x	3.9	53.1
Manufacturing industries - oil	2.40	-68.4%	3.4	56.6
Main activity prod. elec. and heat - gas	2.01	-69.5%	2.9	59.4
Manufacturing industries - coal/peat	1.93	-82.5%	2.7	62.2
Other energy industries - oil	0.79	-57.1%	1.1	63.3
Residential - coal/peat	0.77	-77.0%	1.1	64.4
Other transport - gas	0.60	x	0.9	65.2
Non-specified other - oil	0.56	-87.4%	0.8	66.0
Other energy industries - coal/peat	0.44	x	0.6	66.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>48.78</i>	<i>-40.6%</i>	<i>69.4</i>	<i>69.4</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Cambodia

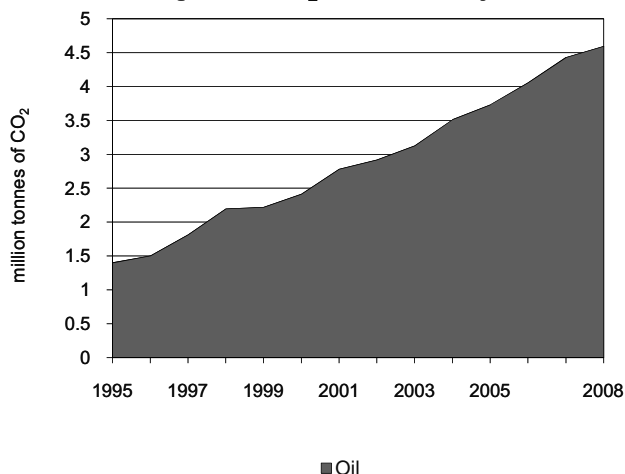
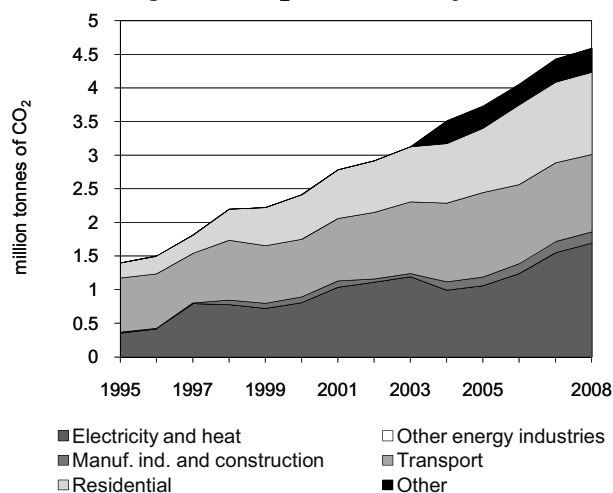
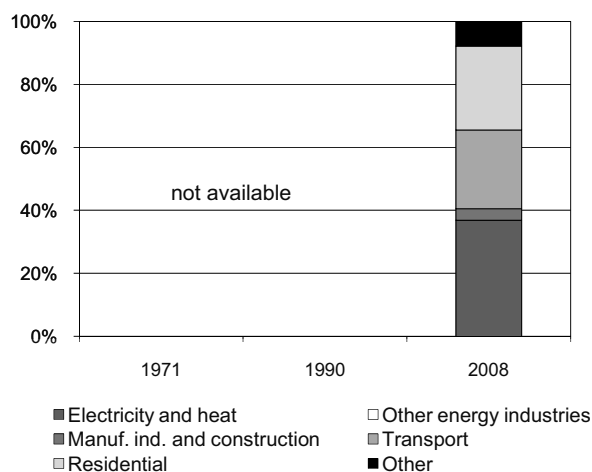
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

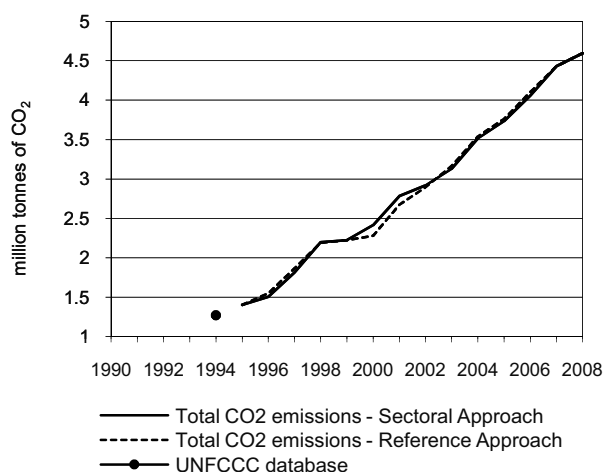


Figure 5. Electricity generation by fuel

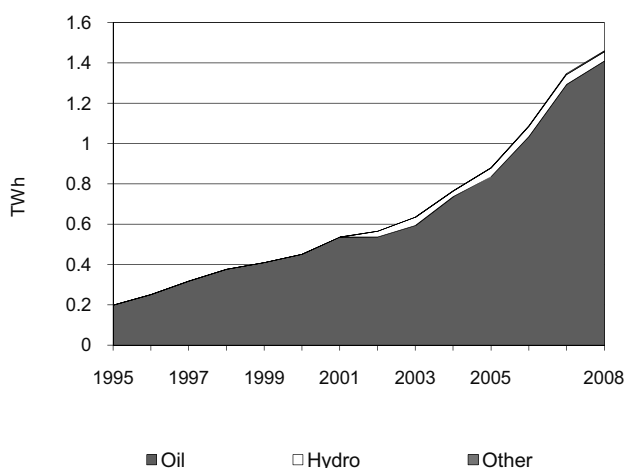
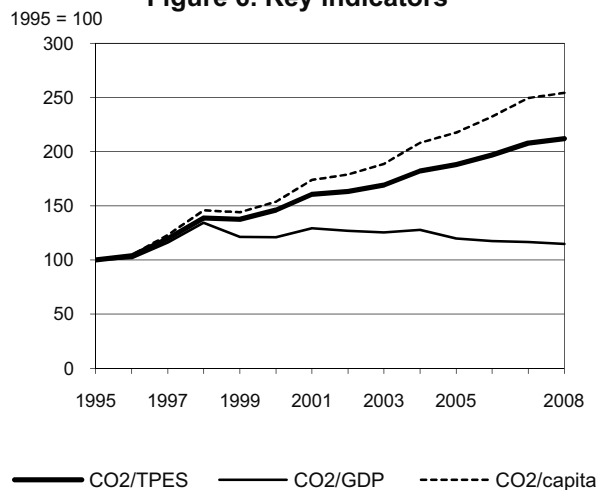


Figure 6. Key indicators



Cambodia *

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	..	1.40	2.42	3.73	4.06	4.43	4.60	..
CO ₂ Reference Approach (Mt of CO ₂)	..	1.40	2.28	3.76	4.11	4.43	4.60	..
TPES (PJ)	..	141	167	200	208	215	219	..
TPES (Mtoe)	..	3.37	3.98	4.78	4.96	5.13	5.22	..
GDP (billion 2000 USD)	..	2.63	3.75	5.85	6.49	7.15	7.52	..
GDP PPP (billion 2000 USD)	..	16.02	22.80	35.63	39.47	43.50	45.78	..
Population (millions)	..	11.40	12.78	13.96	14.20	14.45	14.70	..
CO ₂ / TPES (t CO ₂ per TJ)	..	9.9	14.5	18.7	19.5	20.6	21.0	..
CO ₂ / GDP (kg CO ₂ per 2000 USD)	..	0.53	0.64	0.64	0.63	0.62	0.61	..
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	..	0.09	0.11	0.10	0.10	0.10	0.10	..
CO ₂ / population (t CO ₂ per capita)	..	0.12	0.19	0.27	0.29	0.31	0.31	..

Ratios are based on the Sectoral Approach.

* Prior to 1995, data for Cambodia were included in Other Asia.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach	-	4.60	-	-	4.60	..
Main activity producer elec. and heat	-	1.69	-	-	1.69	..
Unallocated autoproducers	-	-	-	-	-	..
Other energy industries	-	-	-	-	-	..
Manufacturing industries and construction	-	0.17	-	-	0.17	..
Transport	-	1.15	-	-	1.15	..
<i>of which: road</i>	-	1.14	-	-	1.14	..
Other	-	1.58	-	-	1.58	..
<i>of which: residential</i>	-	1.22	-	-	1.22	..
Reference Approach	-	4.60	-	-	4.60	..
Diff. due to losses and/or transformation	-	-	-	-	-	..
Statistical differences	-	0.00	-	-	0.00	..
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.09	-	-	0.09	..

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.69	..	5.2	5.2
Residential - oil	1.22	..	3.7	8.9
Road - oil	1.14	..	3.5	12.4
Non-specified other - oil	0.36	..	1.1	13.5
Manufacturing industries - oil	0.17	..	0.5	14.0
Other transport - oil	0.01	..	0.0	14.0
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.60</i>	<i>..</i>	<i>14.0</i>	<i>14.0</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Cameroon

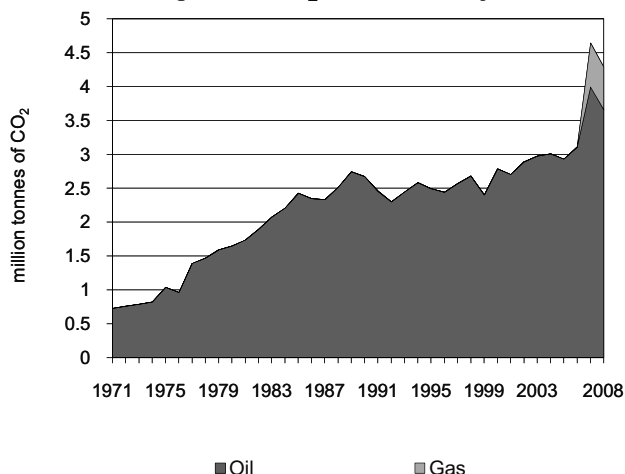
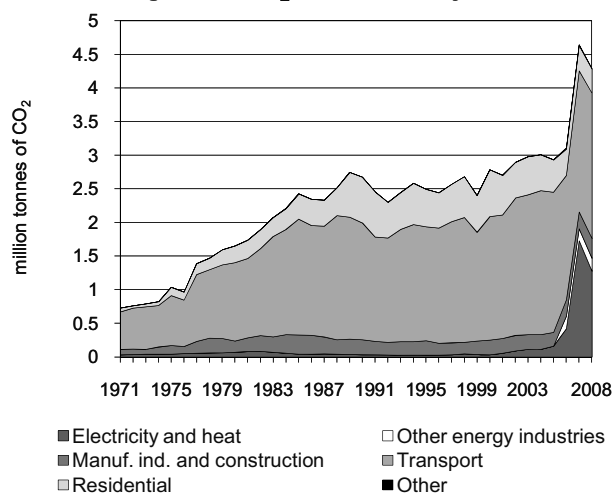
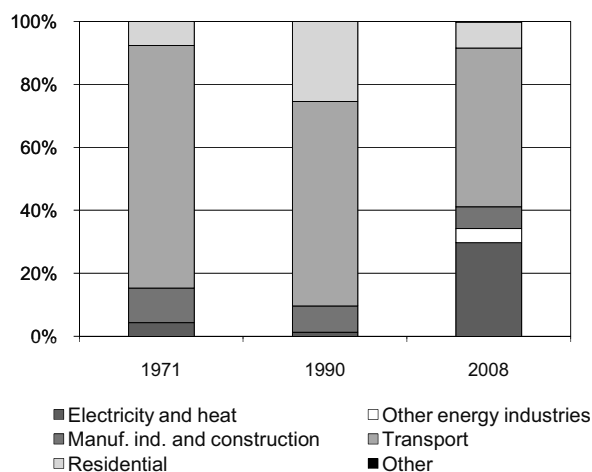
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

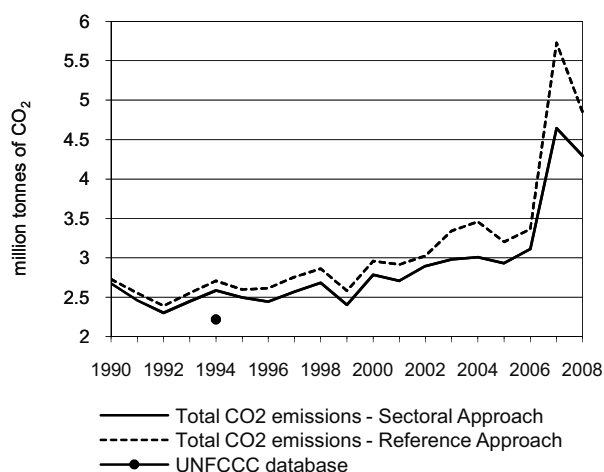


Figure 5. Electricity generation by fuel

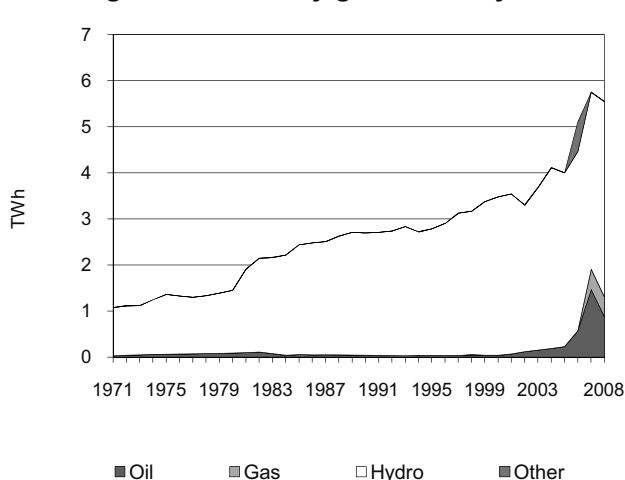
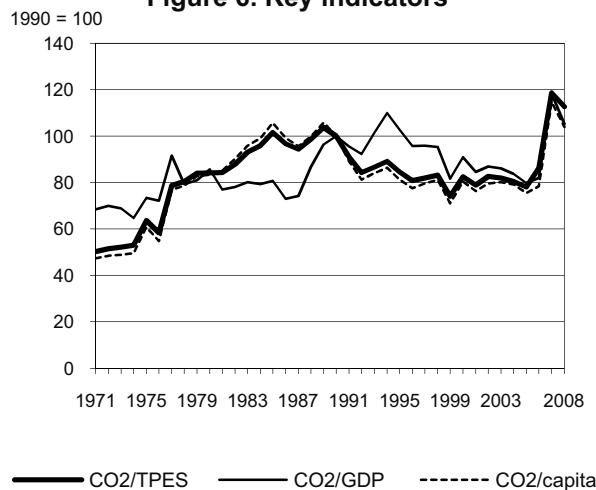


Figure 6. Key indicators



Cameroon

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.67	2.50	2.79	2.93	3.11	4.64	4.29	60.6%
CO ₂ Reference Approach (Mt of CO ₂)	2.73	2.60	2.96	3.20	3.37	5.73	4.85	77.9%
TPES (PJ)	208	230	263	293	281	305	297	42.6%
TPES (Mtoe)	4.98	5.50	6.29	6.99	6.72	7.29	7.10	42.6%
GDP (billion 2000 USD)	8.79	7.99	10.08	12.09	12.48	12.91	13.42	52.6%
GDP PPP (billion 2000 USD)	24.35	22.13	27.90	33.47	34.55	35.76	37.16	52.6%
Population (millions)	12.24	14.06	15.86	17.80	18.18	18.53	18.90	54.4%
CO ₂ / TPES (t CO ₂ per TJ)	12.8	10.8	10.6	10.0	11.0	15.2	14.4	12.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.30	0.31	0.28	0.24	0.25	0.36	0.32	5.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.11	0.10	0.09	0.09	0.13	0.12	5.3%
CO ₂ / population (t CO ₂ per capita)	0.22	0.18	0.18	0.16	0.17	0.25	0.23	4.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	3.66	0.63	-	4.29	60.6%
Main activity producer elec. and heat	-	0.18	0.14	-	0.32	810.2%
Unallocated autoproducers	-	0.47	0.49	-	0.96	x
Other energy industries	-	0.19	-	-	0.19	x
Manufacturing industries and construction	-	0.30	-	-	0.30	33.0%
Transport	-	2.17	-	-	2.17	24.7%
<i>of which: road</i>	-	2.06	-	-	2.06	18.5%
Other	-	0.36	-	-	0.36	-46.5%
<i>of which: residential</i>	-	0.35	-	-	0.35	-47.8%
Reference Approach	-	4.07	0.79	-	4.85	77.9%
Diff. due to losses and/or transformation	-	0.04	0.16	-	0.19	
Statistical differences	-	0.37	-0.00	-	0.36	
<i>Memo: international marine bunkers</i>	-	0.16	-	-	0.16	275.5%
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	32.7%

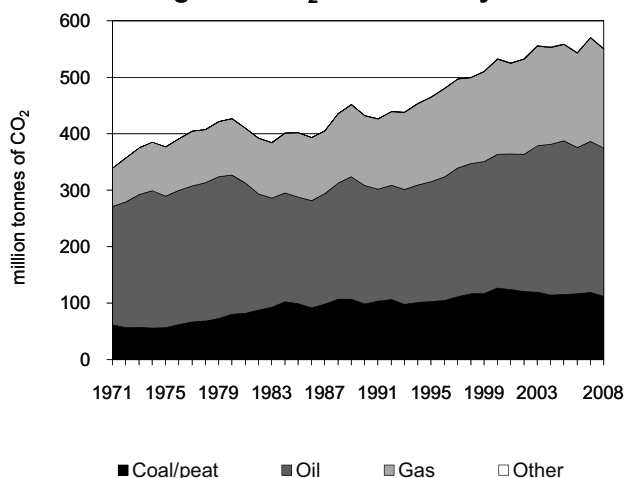
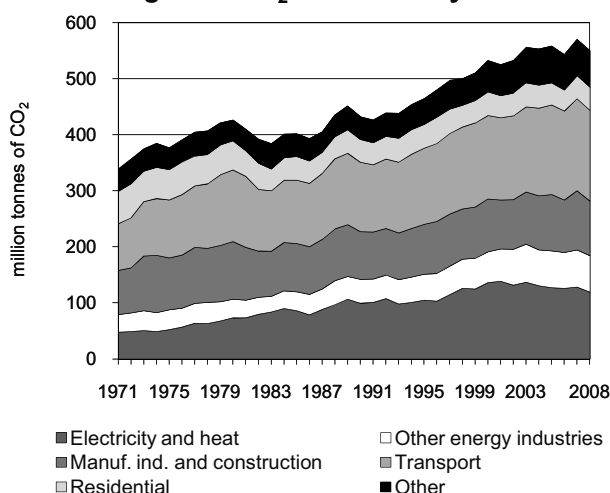
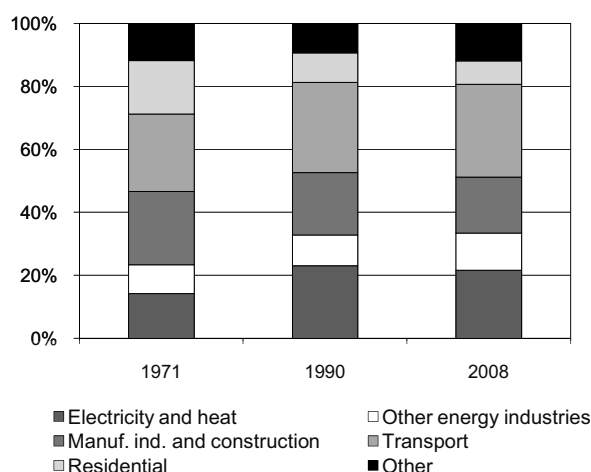
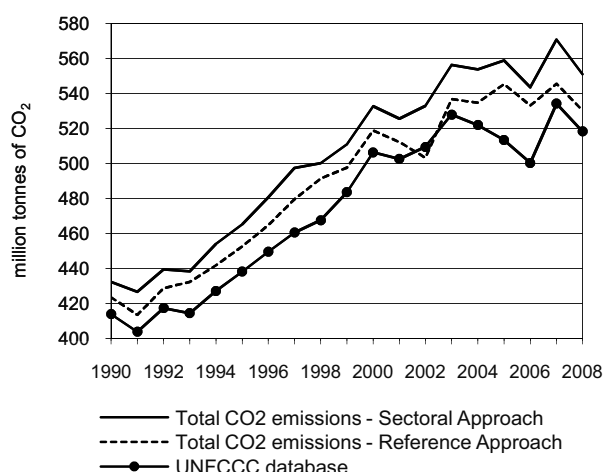
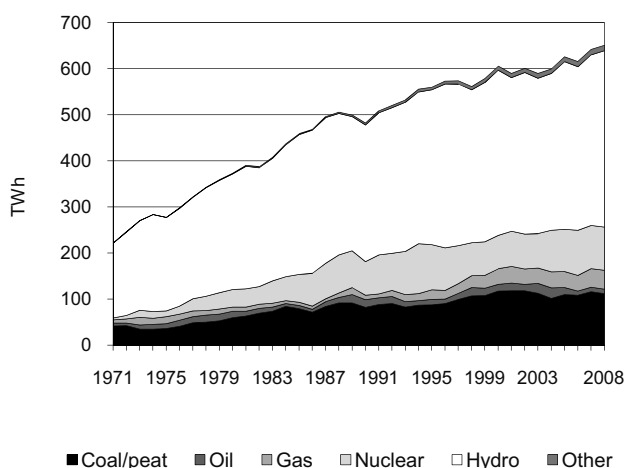
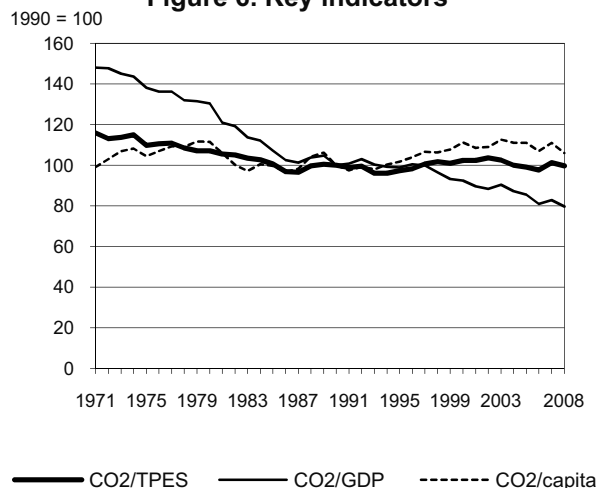
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	2.06	18.5%	5.3	5.3
Unallocated autoproducers - gas	0.49	x	1.3	6.6
Unallocated autoproducers - oil	0.47	x	1.2	7.8
Residential - oil	0.35	-47.8%	0.9	8.7
Manufacturing industries - oil	0.30	33.0%	0.8	9.5
Other energy industries - oil	0.19	x	0.5	10.0
Main activity prod. elec. and heat - oil	0.18	416.6%	0.5	10.4
Main activity prod. elec. and heat - gas	0.14	x	0.4	10.8
Other transport - oil	0.11	x	0.3	11.1
Non-specified other - oil	0.01	x	0.0	11.1
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.29</i>	<i>60.6%</i>	<i>11.1</i>	<i>11.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Canada

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Canada

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	432.35	465.23	532.78	558.82	543.57	570.80	550.91	27.4%
CO ₂ Reference Approach (Mt of CO ₂)	423.56	452.70	518.79	545.38	533.02	545.52	530.40	25.2%
TPES (PJ)	8 737	9 668	10 527	11 402	11 247	11 392	11 169	27.8%
TPES (Mtoe)	208.68	230.92	251.44	272.34	268.62	272.10	266.77	27.8%
GDP (billion 2000 USD)	543.64	592.05	724.91	821.94	845.39	866.79	870.39	60.1%
GDP PPP (billion 2000 USD)	655.51	713.88	874.08	991.07	1 019.35	1 045.16	1 049.49	60.1%
Population (millions)	27.69	29.30	30.69	32.25	32.58	32.93	33.33	20.4%
CO ₂ / TPES (t CO ₂ per TJ)	49.5	48.1	50.6	49.0	48.3	50.1	49.3	-0.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.80	0.79	0.74	0.68	0.64	0.66	0.63	-20.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.66	0.65	0.61	0.56	0.53	0.55	0.52	-20.4%
CO ₂ / population (t CO ₂ per capita)	15.61	15.88	17.36	17.33	16.69	17.33	16.53	5.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	112.17	262.89	175.20	0.65	550.91	27.4%
Main activity producer elec. and heat	92.17	7.51	13.36	-	113.04	17.1%
Unallocated autoproducers	0.12	1.50	4.45	0.18	6.24	97.1%
Other energy industries	0.26	28.80	36.09	-	65.15	53.8%
Manufacturing industries and construction	19.41	24.56	53.42	0.47	97.87	14.6%
Transport	-	154.51	7.48	-	161.99	30.8%
<i>of which: road</i>	-	126.76	0.09	-	126.86	32.6%
Other	0.22	46.01	60.40	-	106.62	31.5%
<i>of which: residential</i>	0.13	6.16	34.61	-	40.89	0.3%
Reference Approach	103.78	248.31	177.67	0.65	530.40	25.2%
Diff. due to losses and/or transformation	1.40	- 22.50	5.34	-	- 15.76	
Statistical differences	- 9.79	7.92	- 2.87	0.00	- 4.75	
<i>Memo: international marine bunkers</i>	-	1.67	-	-	1.67	-41.6%
<i>Memo: international aviation bunkers</i>	-	1.66	-	-	1.66	-38.7%

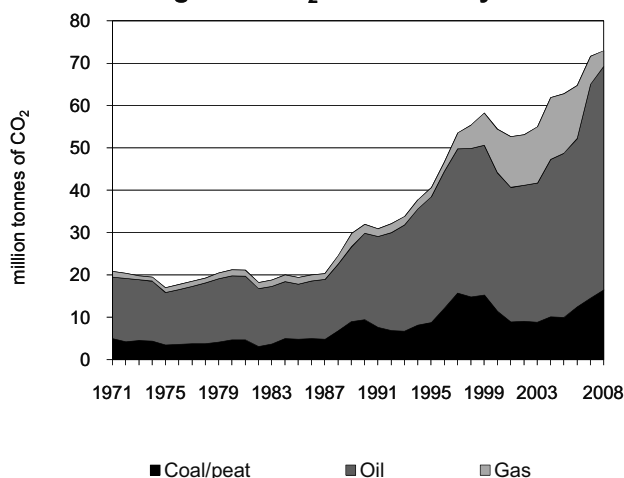
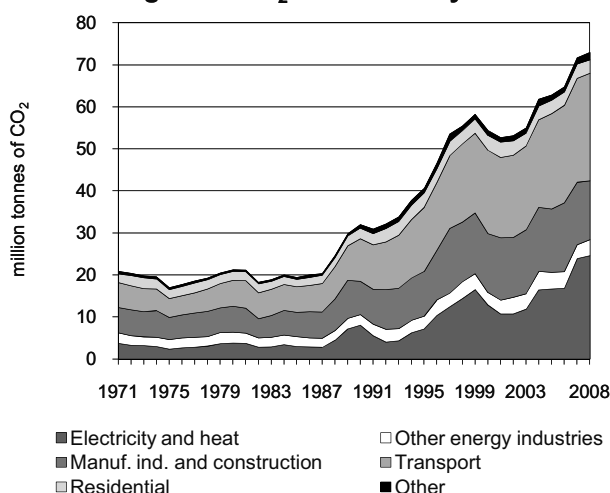
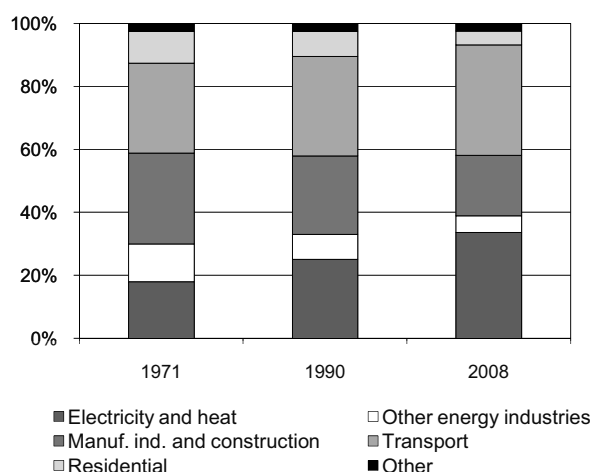
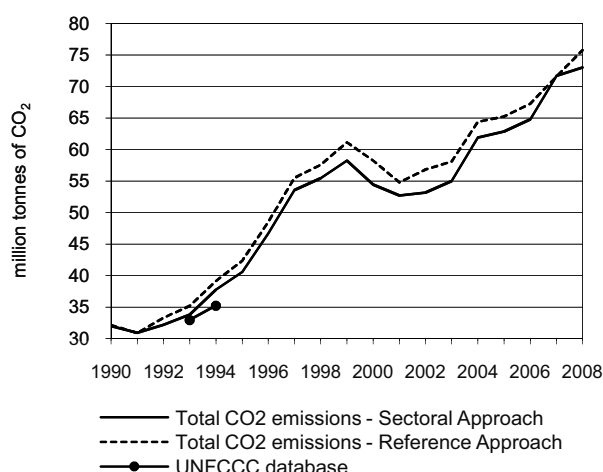
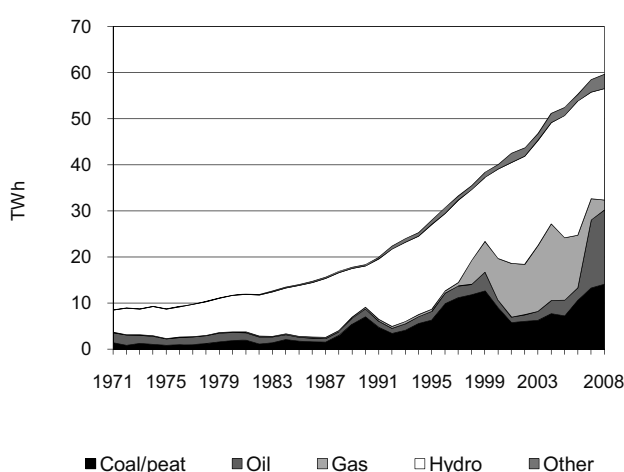
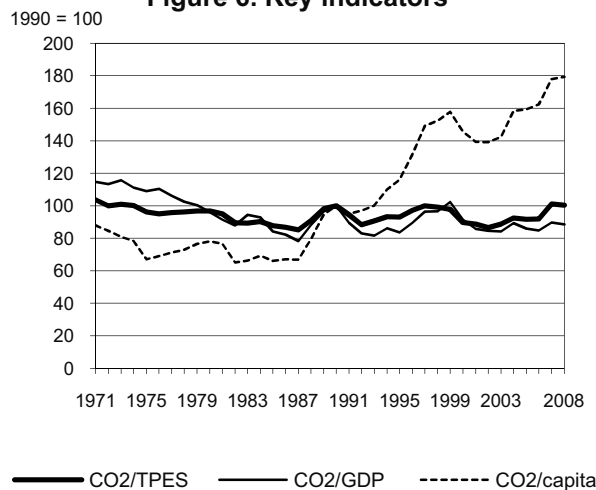
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	126.76	32.6%	16.5	16.5
Main activity prod. elec. and heat - coal/peat	92.17	11.1%	12.0	28.5
Manufacturing industries - gas	53.42	19.6%	7.0	35.5
Non-specified other - oil	39.85	102.8%	5.2	40.7
Other energy industries - gas	36.09	73.4%	4.7	45.4
Residential - gas	34.61	30.4%	4.5	49.9
Other energy industries - oil	28.80	36.1%	3.8	53.7
Other transport - oil	27.75	29.1%	3.6	57.3
Non-specified other - gas	25.79	25.2%	3.4	60.7
Manufacturing industries - oil	24.56	-3.1%	3.2	63.9
Manufacturing industries - coal/peat	19.41	27.7%	2.5	66.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>550.91</i>	<i>27.4%</i>	<i>71.8</i>	<i>71.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Chile

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Chile

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	31.99	40.58	54.42	62.84	64.77	71.68	72.98	128.1%
CO ₂ Reference Approach (Mt of CO ₂)	32.13	42.35	58.21	65.24	67.28	71.60	75.76	135.8%
TPES (PJ)	580	790	1 099	1 241	1 277	1 285	1 317	127.2%
TPES (Mtoe)	13.84	18.86	26.25	29.64	30.49	30.69	31.45	127.2%
GDP (billion 2000 USD)	40.56	61.52	75.39	92.63	96.88	101.42	104.63	158.0%
GDP PPP (billion 2000 USD)	75.70	116.53	142.81	175.47	183.52	192.11	198.19	161.8%
Population (millions)	13.18	14.40	15.40	16.27	16.43	16.60	16.76	27.2%
CO ₂ / TPES (t CO ₂ per TJ)	55.2	51.4	49.5	50.6	50.7	55.8	55.4	0.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.79	0.66	0.72	0.68	0.67	0.71	0.70	-11.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.42	0.35	0.38	0.36	0.35	0.37	0.37	-12.8%
CO ₂ / population (t CO ₂ per capita)	2.43	2.82	3.53	3.86	3.94	4.32	4.35	79.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	16.51	52.76	3.71	-	72.98	128.1%
Main activity producer elec. and heat	13.50	9.38	0.99	-	23.87	196.6%
Unallocated autoproducers	0.02	0.56	0.12	-	0.70	+
Other energy industries	0.89	2.98	0.00	-	3.87	54.2%
Manufacturing industries and construction	2.00	10.49	1.47	-	13.96	75.4%
Transport	-	25.58	0.03	-	25.61	152.8%
<i>of which: road</i>	-	17.27	0.03	-	17.30	123.1%
Other	0.10	3.77	1.10	-	4.98	48.8%
<i>of which: residential</i>	0.02	2.36	0.83	-	3.22	26.8%
Reference Approach	16.85	55.15	3.75	-	75.76	135.8%
Diff. due to losses and/or transformation	0.22	2.43	0.04	-	2.68	
Statistical differences	0.12	- 0.03	0.00	-	0.09	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	17.27	123.1%	16.6	16.6
Main activity prod. elec. and heat - coal/peat	13.50	110.5%	13.0	29.6
Manufacturing industries - oil	10.49	122.9%	10.1	39.7
Main activity prod. elec. and heat - oil	9.38	528.9%	9.0	48.7
Other transport - oil	8.31	250.0%	8.0	56.7
Other energy industries - oil	2.98	107.2%	2.9	59.6
Residential - oil	2.36	13.7%	2.3	61.8
Manufacturing industries - coal/peat	2.00	-4.1%	1.9	63.8
Manufacturing industries - gas	1.47	25.8%	1.4	65.2
Non-specified other - oil	1.41	143.3%	1.4	66.5
Main activity prod. elec. and heat - gas	0.99	577.8%	1.0	67.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>72.98</i>	<i>128.1%</i>	<i>70.2</i>	<i>70.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

People's Republic of China

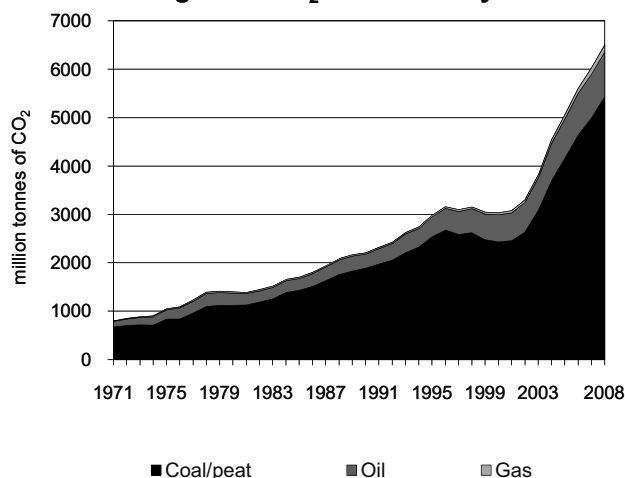
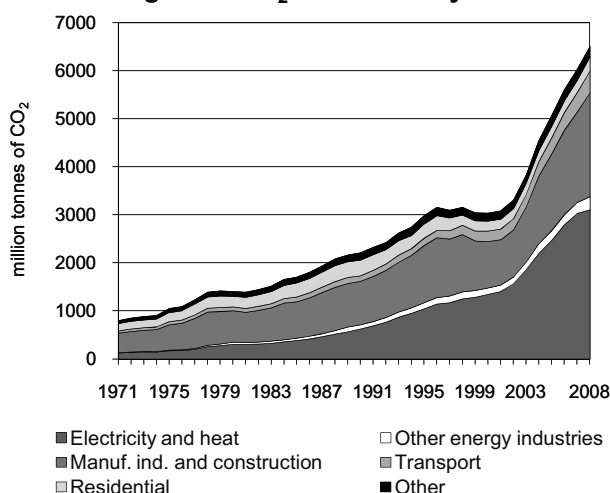
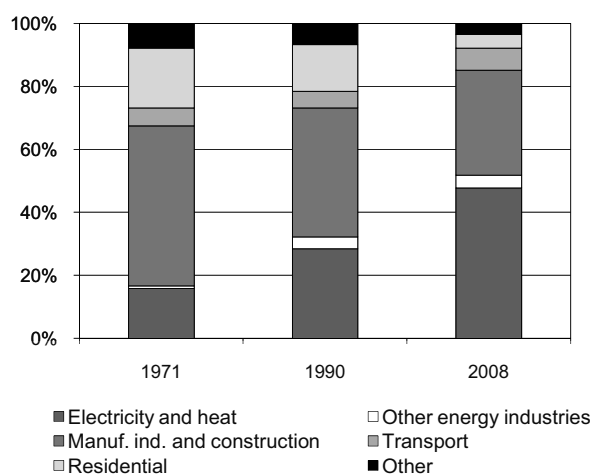
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

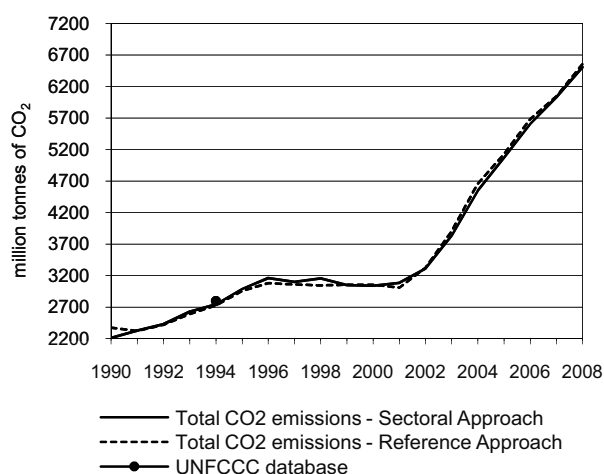


Figure 5. Electricity generation by fuel

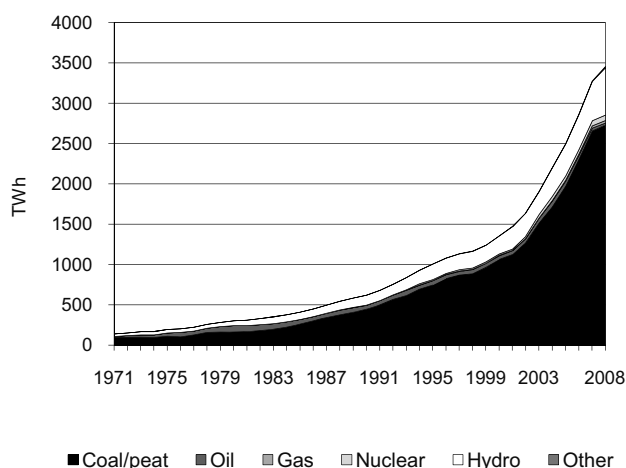
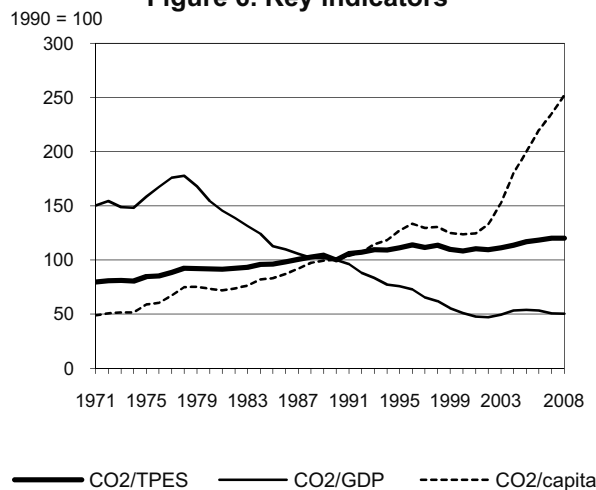


Figure 6. Key indicators



People's Republic of China

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2 211.3	2 986.1	3 037.9	5 067.6	5 607.6	6 032.3	6 508.2	194.3%
CO ₂ Reference Approach (Mt of CO ₂)	2 371.1	2 957.8	3 054.6	5 130.0	5 682.5	6 043.7	6 558.2	176.6%
TPES (PJ)	36 130	43 823	45 801	70 953	77 514	82 163	88 611	145.3%
TPES (Mtoe)	863.0	1 046.7	1 093.9	1 694.7	1 851.4	1 962.4	2 116.4	145.3%
GDP (billion 2000 USD)	444.6	792.8	1 198.5	1 893.4	2 113.0	2 387.7	2 602.6	485.4%
GDP PPP (billion 2000 USD)	1 845.6	3 291.0	4 975.2	7 859.8	8 771.5	9 911.8	10 803.8	485.4%
Population (millions)	1 135.2	1 204.9	1 262.6	1 303.7	1 311.0	1 318.3	1 325.6	16.8%
CO ₂ / TPES (t CO ₂ per TJ)	61.2	68.1	66.3	71.4	72.3	73.4	73.4	20.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.97	3.77	2.53	2.68	2.65	2.53	2.50	-49.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.20	0.91	0.61	0.64	0.64	0.61	0.60	-49.7%
CO ₂ / population (t CO ₂ per capita)	1.95	2.48	2.41	3.89	4.28	4.58	4.91	152.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	5 432.3	926.5	149.4	-	6 508.2	194.3%
Main activity producer elec. and heat	3 017.4	19.6	21.4	-	3 058.4	395.9%
Unallocated autoproducers	37.1	12.7	-	-	49.8	325.1%
Other energy industries	170.1	77.2	21.3	-	268.6	218.3%
Manufacturing industries and construction	1 905.3	209.0	53.6	-	2 167.9	139.7%
Transport	12.7	439.4	0.5	-	452.6	288.3%
<i>of which: road</i>	-	329.6	0.5	-	330.1	440.8%
Other	289.7	168.6	52.7	-	511.0	7.0%
<i>of which: residential</i>	187.2	64.6	33.3	-	285.1	-13.1%
Reference Approach	5 448.5	956.8	152.9	-	6 558.2	176.6%
Diff. due to losses and/or transformation	101.7	27.2	2.7	-	131.5	
Statistical differences	- 85.5	3.1	0.8	-	- 81.6	
<i>Memo: international marine bunkers</i>	-	26.2	-	-	26.2	471.2%
<i>Memo: international aviation bunkers</i>	-	6.0	-	-	6.0	+

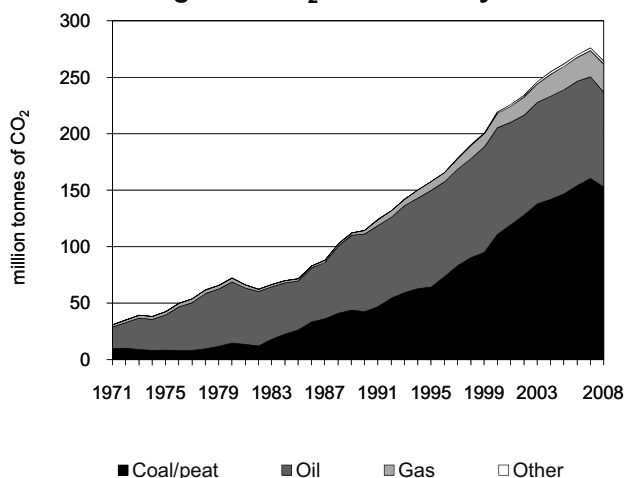
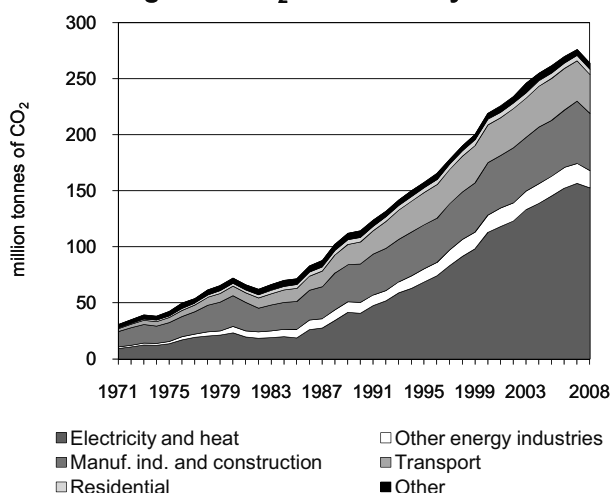
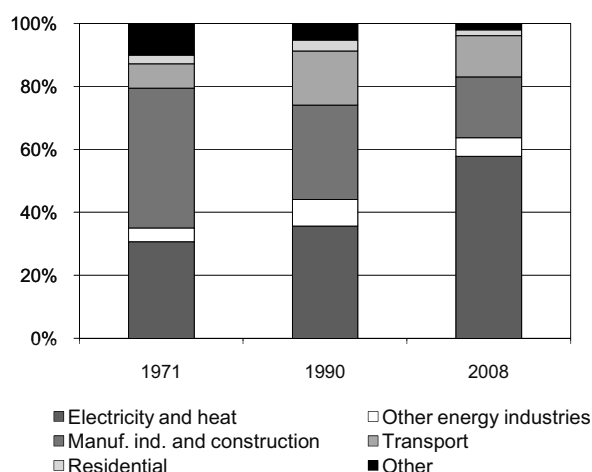
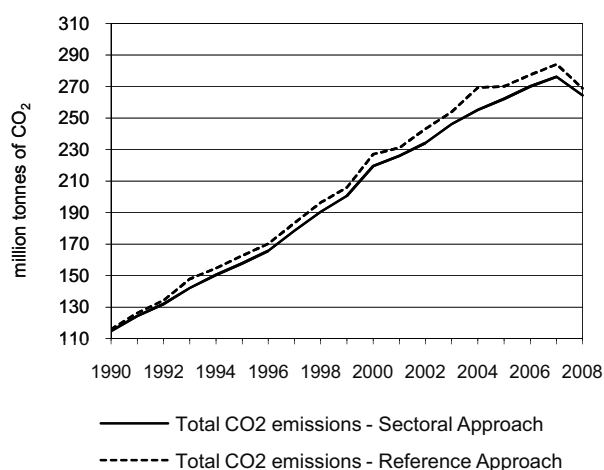
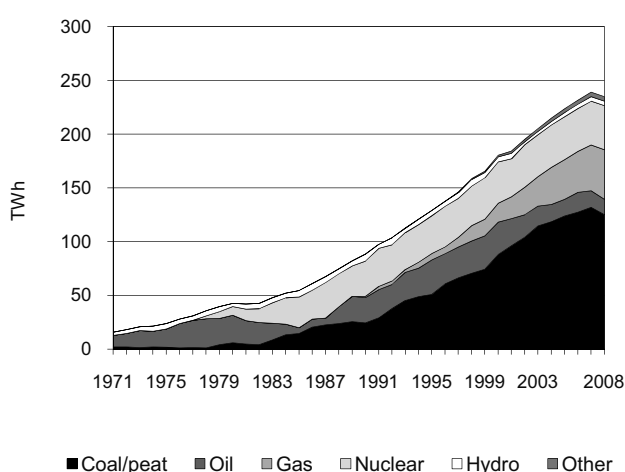
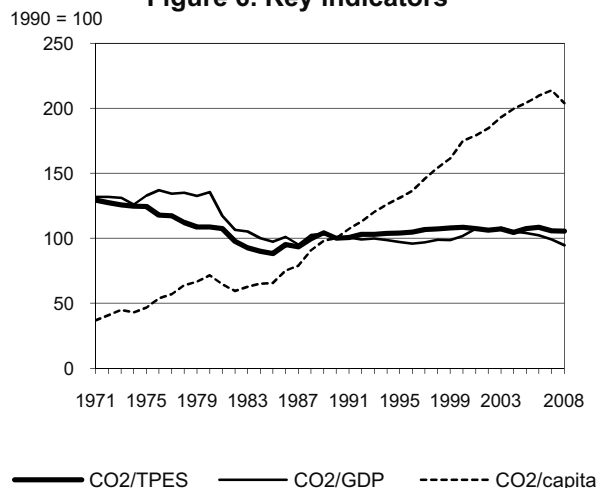
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	3 017.4	427.3%	31.8	31.8
Manufacturing industries - coal/peat	1 905.3	136.6%	20.1	51.9
Road - oil	329.6	440.0%	3.5	55.3
Manufacturing industries - oil	209.0	143.3%	2.2	57.5
Residential - coal/peat	187.2	-40.9%	2.0	59.5
Other energy industries - coal/peat	170.1	233.6%	1.8	61.3
Other transport - oil	109.8	544.2%	1.2	62.5
Non-specified other - oil	103.9	129.1%	1.1	63.6
Non-specified other sectors - coal/peat	102.6	-1.2%	1.1	64.6
Other energy industries - oil	77.2	185.3%	0.8	65.5
Residential - oil	64.6	724.0%	0.7	66.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>6 508.2</i>	<i>194.3%</i>	<i>68.6</i>	<i>68.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Chinese Taipei

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Chinese Taipei

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	114.66	157.78	219.43	262.04	270.04	276.18	264.29	130.5%
CO ₂ Reference Approach (Mt of CO ₂)	115.91	162.66	226.92	270.03	277.34	284.03	268.74	131.9%
TPES (PJ)	2 020	2 672	3 563	4 295	4 389	4 600	4 417	118.7%
TPES (Mtoe)	48.24	63.82	85.10	102.59	104.84	109.86	105.49	118.7%
GDP (billion 2000 USD)	170.92	242.44	321.23	375.99	393.58	416.00	416.51	143.7%
GDP PPP (billion 2000 USD)	261.44	370.83	491.35	575.11	602.02	636.32	637.10	143.7%
Population (millions)	20.28	21.29	22.18	22.70	22.78	22.86	22.92	13.0%
CO ₂ / TPES (t CO ₂ per TJ)	56.8	59.0	61.6	61.0	61.5	60.0	59.8	5.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.67	0.65	0.68	0.70	0.69	0.66	0.63	-5.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.44	0.43	0.45	0.46	0.45	0.43	0.41	-5.4%
CO ₂ / population (t CO ₂ per capita)	5.65	7.41	9.89	11.54	11.85	12.08	11.53	103.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	152.97	83.89	25.09	2.33	264.29	130.5%
Main activity producer elec. and heat	89.96	8.11	19.56	0.00	117.63	228.4%
Unallocated autoproducers	28.77	3.70	0.29	2.33	35.09	590.6%
Other energy industries	9.24	5.39	0.93	-	15.56	60.9%
Manufacturing industries and construction	25.01	24.26	1.88	-	51.15	48.9%
Transport	-	34.63	-	-	34.63	76.3%
<i>of which: road</i>	-	33.37	-	-	33.37	79.9%
Other	-	7.81	2.42	-	10.23	1.5%
<i>of which: residential</i>	-	3.03	1.75	-	4.78	17.5%
Reference Approach	155.46	85.81	25.14	2.33	268.74	131.9%
Diff. due to losses and/or transformation	- 0.52	1.25	-	-	0.73	
Statistical differences	3.00	0.67	0.05	-	3.72	
<i>Memo: international marine bunkers</i>	-	5.71	-	-	5.71	17.4%
<i>Memo: international aviation bunkers</i>	-	5.72	-	-	5.72	219.2%

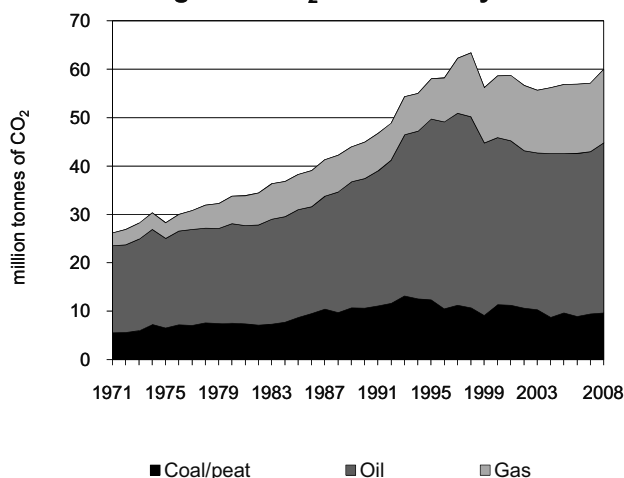
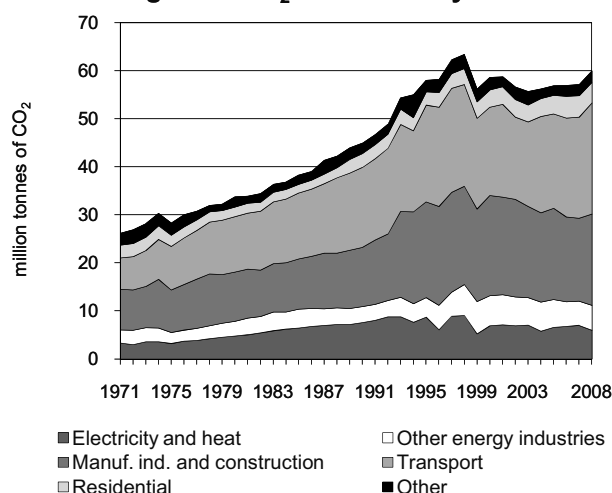
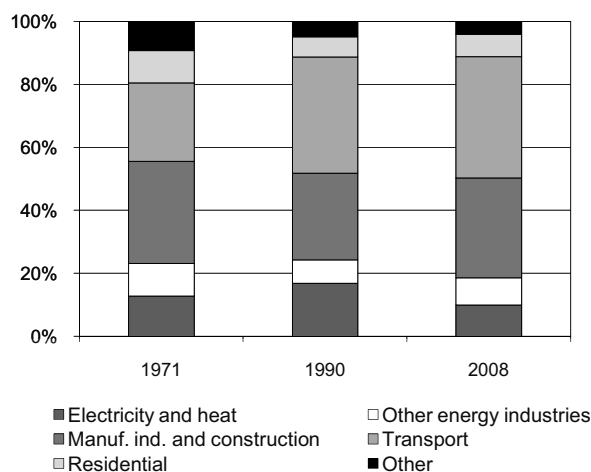
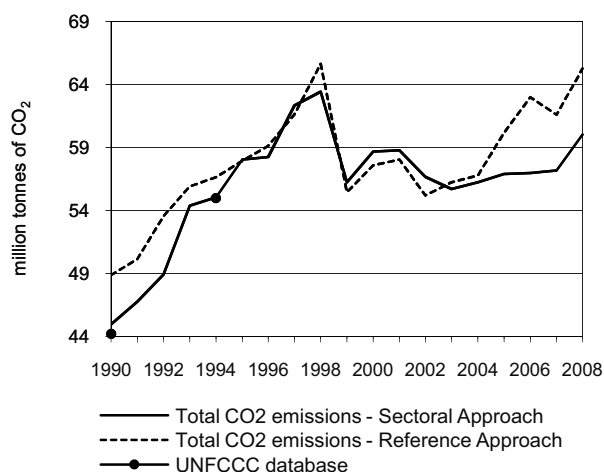
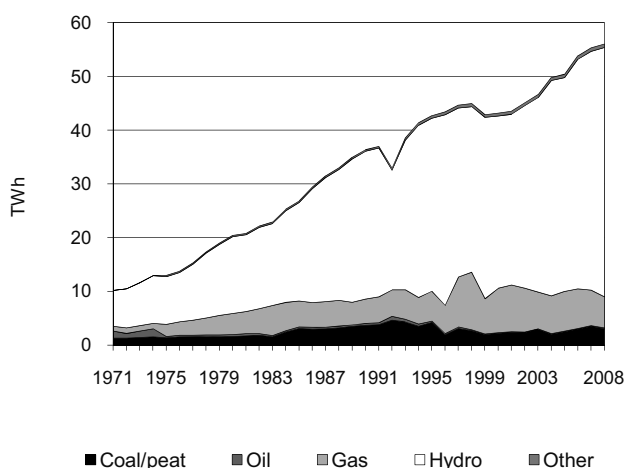
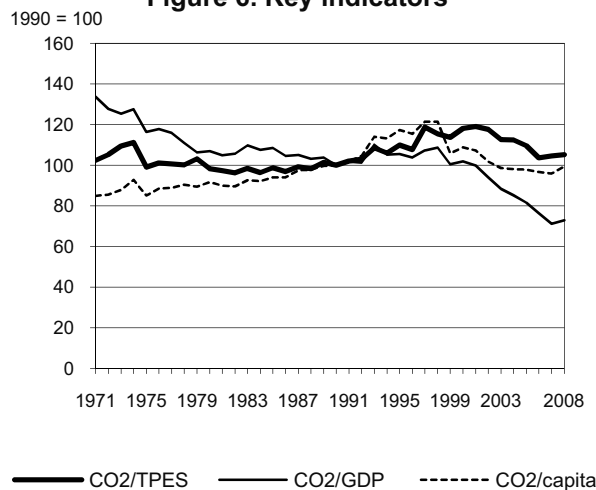
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	89.96	354.7%	30.2	30.2
Road - oil	33.37	79.9%	11.2	41.4
Unallocated autoproducers - coal/peat	28.77	570.4%	9.7	51.1
Manufacturing industries - coal/peat	25.01	73.9%	8.4	59.4
Manufacturing industries - oil	24.26	25.7%	8.1	67.6
Main activity prod. elec. and heat - gas	19.56	+	6.6	74.2
Other energy industries - coal/peat	9.24	121.9%	3.1	77.3
Main activity prod. elec. and heat - oil	8.11	-47.6%	2.7	80.0
Other energy industries - oil	5.39	12.8%	1.8	81.8
Non-specified other - oil	4.77	-17.4%	1.6	83.4
Unallocated autoproducers - oil	3.70	406.2%	1.2	84.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>264.29</i>	<i>130.5%</i>	<i>88.7</i>	<i>88.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Colombia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Colombia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	44.96	58.05	58.67	56.90	56.96	57.17	60.02	33.5%
CO ₂ Reference Approach (Mt of CO ₂)	48.87	57.93	57.59	60.17	62.98	61.61	65.26	33.5%
TPES (PJ)	1 014	1 192	1 121	1 172	1 240	1 233	1 288	27.0%
TPES (Mtoe)	24.22	28.46	26.78	27.99	29.62	29.46	30.77	27.0%
GDP (billion 2000 USD)	73.39	89.86	94.05	113.98	121.90	131.09	134.41	83.1%
GDP PPP (billion 2000 USD)	218.11	267.05	279.52	338.75	362.27	389.60	399.46	83.1%
Population (millions)	33.15	36.49	39.78	42.89	43.44	43.99	44.53	34.3%
CO ₂ / TPES (t CO ₂ per TJ)	44.3	48.7	52.3	48.6	45.9	46.4	46.6	5.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.61	0.65	0.62	0.50	0.47	0.44	0.45	-27.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.21	0.22	0.21	0.17	0.16	0.15	0.15	-27.1%
CO ₂ / population (t CO ₂ per capita)	1.36	1.59	1.47	1.33	1.31	1.30	1.35	-0.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	9.63	35.19	15.20	-	60.02	33.5%
Main activity producer elec. and heat	2.46	0.06	2.42	-	4.95	-15.0%
Unallocated autoproducers	0.73	0.07	0.25	-	1.05	-40.6%
Other energy industries	0.09	1.77	3.34	-	5.20	54.5%
Manufacturing industries and construction	6.12	7.71	5.17	-	19.01	54.1%
Transport	-	21.80	1.32	-	23.11	39.1%
<i>of which: road</i>	-	20.90	1.32	-	22.21	41.9%
Other	0.23	3.77	2.69	-	6.70	32.4%
<i>of which: residential</i>	0.23	1.71	2.29	-	4.23	48.2%
Reference Approach	10.86	39.20	15.20	-	65.26	33.5%
Diff. due to losses and/or transformation	1.25	3.49	-	-	4.74	
Statistical differences	- 0.02	0.52	0.00	-	0.50	
<i>Memo: international marine bunkers</i>	-	1.23	-	-	1.23	274.0%
<i>Memo: international aviation bunkers</i>	-	1.72	-	-	1.72	10.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	20.90	33.5%	13.7	13.7
Manufacturing industries - oil	7.71	64.2%	5.0	18.7
Manufacturing industries - coal/peat	6.12	5.8%	4.0	22.7
Manufacturing industries - gas	5.17	178.8%	3.4	26.1
Other energy industries - gas	3.34	34.8%	2.2	28.3
Main activity prod. elec. and heat - coal/peat	2.46	-5.4%	1.6	29.9
Main activity prod. elec. and heat - gas	2.42	-16.5%	1.6	31.5
Residential - gas	2.29	976.6%	1.5	33.0
Non-specified other - oil	2.06	-4.8%	1.3	34.3
Other energy industries - oil	1.77	117.8%	1.2	35.5
Residential - oil	1.71	-21.1%	1.1	36.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>60.02</i>	<i>33.5%</i>	<i>39.2</i>	<i>39.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Congo

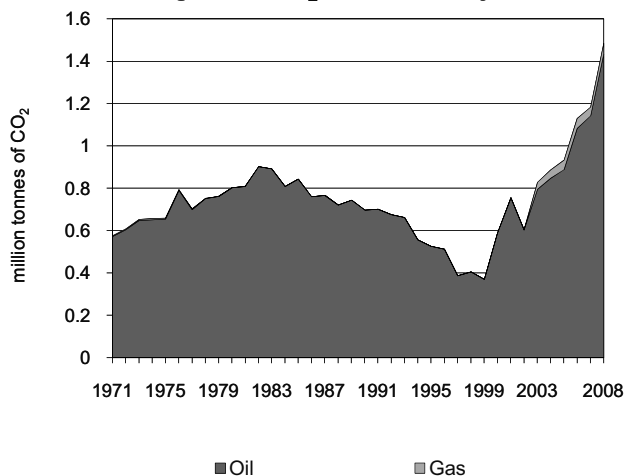
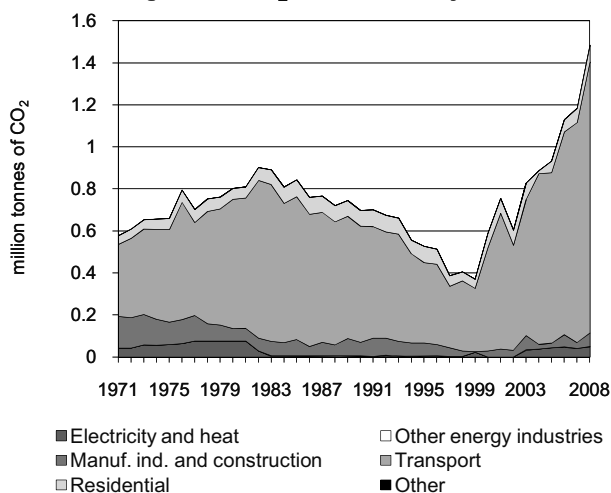
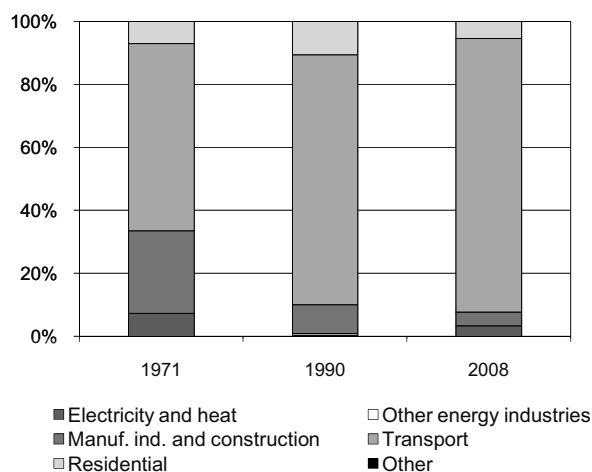
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

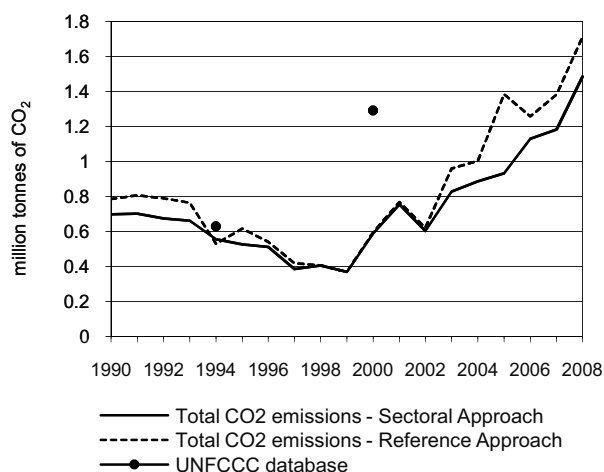


Figure 5. Electricity generation by fuel

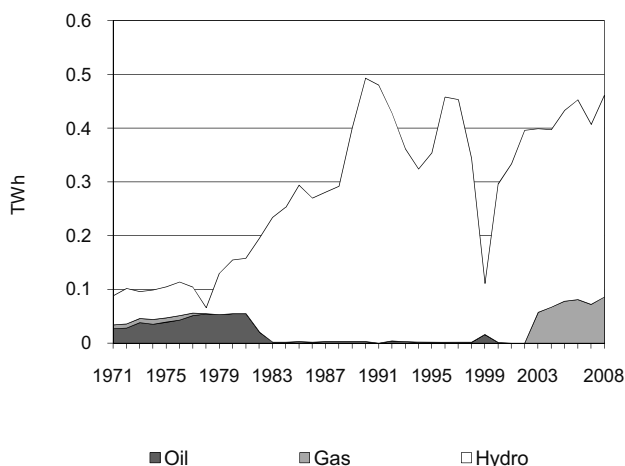
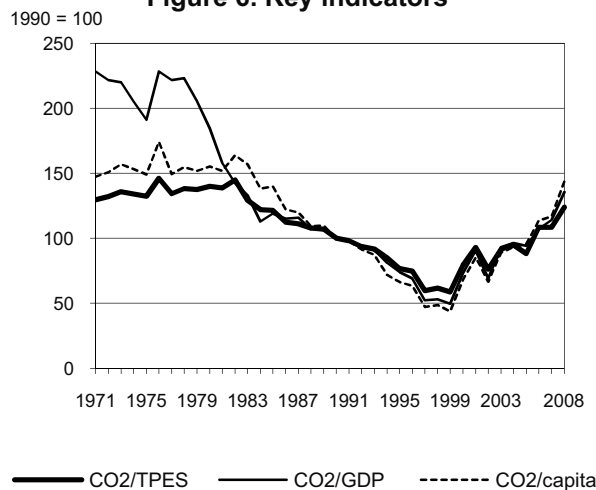


Figure 6. Key indicators



Congo

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	0.70	0.53	0.59	0.93	1.13	1.18	1.48	112.8%
CO ₂ Reference Approach (Mt of CO ₂)	0.79	0.62	0.60	1.38	1.26	1.38	1.71	117.4%
TPES (PJ)	33	33	36	51	50	52	57	71.6%
TPES (Mtoe)	0.80	0.79	0.85	1.21	1.19	1.25	1.37	71.6%
GDP (billion 2000 USD)	2.80	2.86	3.22	3.98	4.22	4.16	4.39	56.9%
GDP PPP (billion 2000 USD)	3.15	3.22	3.62	4.47	4.75	4.68	4.94	56.9%
Population (millions)	2.45	2.78	3.04	3.42	3.49	3.55	3.62	47.8%
CO ₂ / TPES (t CO ₂ per TJ)	20.9	16.0	16.6	18.5	22.7	22.7	25.9	24.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.25	0.18	0.18	0.23	0.27	0.28	0.34	35.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.22	0.16	0.16	0.21	0.24	0.25	0.30	35.6%
CO ₂ / population (t CO ₂ per capita)	0.29	0.19	0.19	0.27	0.32	0.33	0.41	44.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	1.43	0.05	-	1.48	112.8%
Main activity producer elec. and heat	-	-	0.05	-	0.05	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.06	-	-	0.06	1.4%
Transport	-	1.29	-	-	1.29	133.2%
<i>of which: road</i>	-	1.07	-	-	1.07	135.6%
Other	-	0.08	-	-	0.08	7.3%
<i>of which: residential</i>	-	0.08	-	-	0.08	7.3%
Reference Approach	-	1.66	0.05	-	1.71	117.4%
Diff. due to losses and/or transformation	-	0.07	-	-	0.07	
Statistical differences	-	0.15	-	-	0.15	
<i>Memo: international marine bunkers</i>	-	0.13	-	-	0.13	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	1.07	135.6%	8.9	8.9
Other transport - oil	0.22	122.1%	1.9	10.7
Residential - oil	0.08	7.3%	0.7	11.4
Manufacturing industries - oil	0.06	1.4%	0.5	11.9
Main activity prod. elec. and heat - gas	0.05	x	0.4	12.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	1.48	112.8%	12.3	12.3

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Democratic Republic of Congo

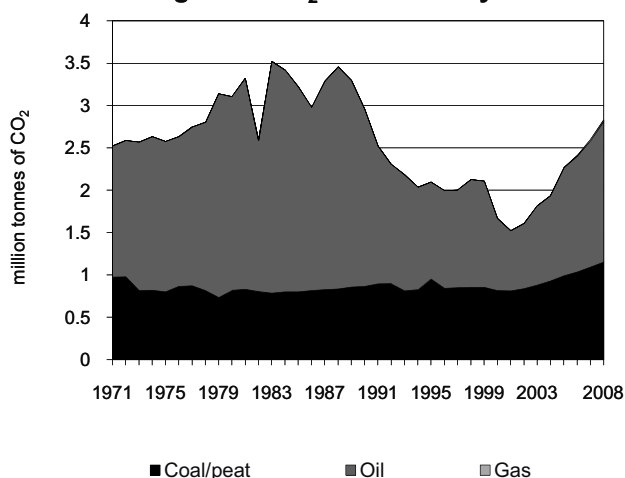
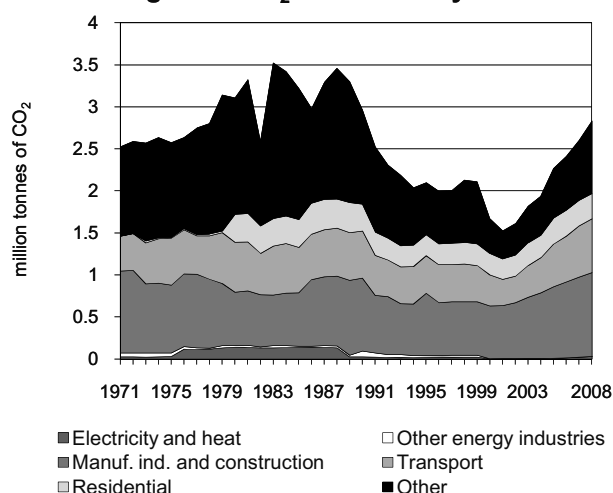
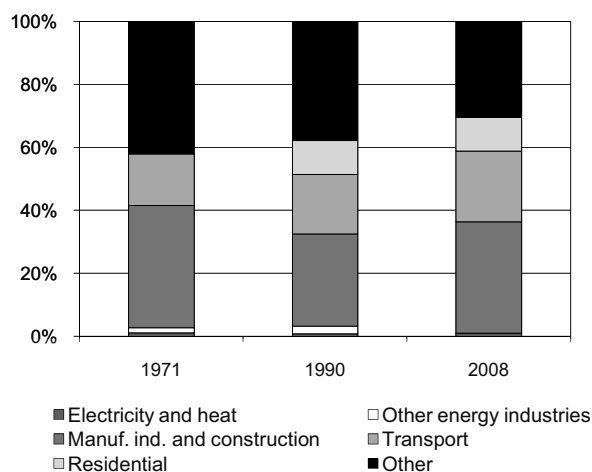
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

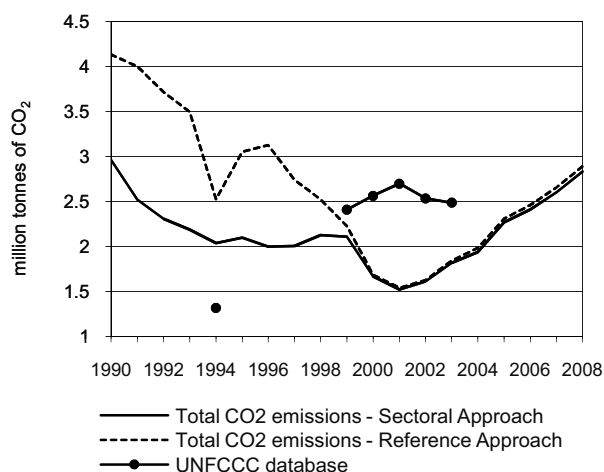


Figure 5. Electricity generation by fuel

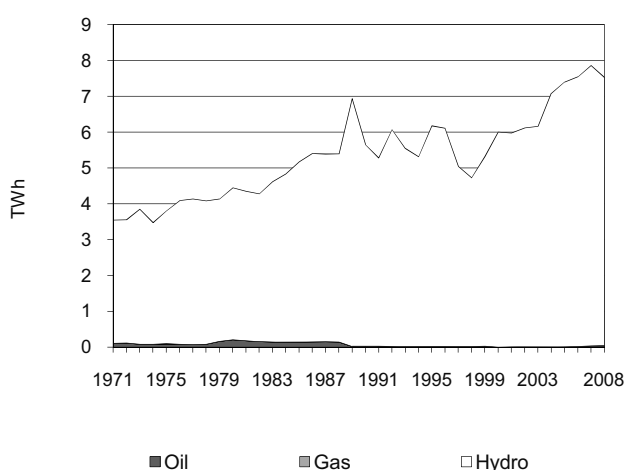
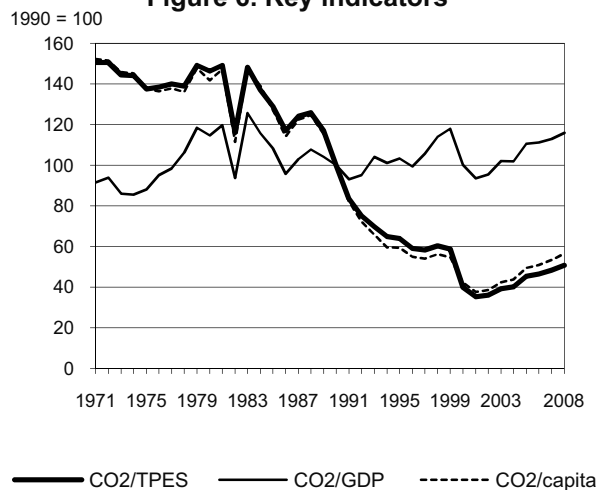


Figure 6. Key indicators



Democratic Republic of Congo

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.96	2.10	1.67	2.27	2.41	2.60	2.83	-4.4%
CO ₂ Reference Approach (Mt of CO ₂)	4.13	3.05	1.69	2.31	2.46	2.66	2.89	-30.0%
TPES (PJ)	494	548	698	836	867	899	932	88.6%
TPES (Mtoe)	11.80	13.08	16.68	19.97	20.72	21.46	22.25	88.6%
GDP (billion 2000 USD)	7.66	5.26	4.31	5.31	5.61	5.96	6.33	-17.4%
GDP PPP (billion 2000 USD)	53.57	36.76	30.11	37.12	39.20	41.65	44.23	-17.4%
Population (millions)	37.94	45.34	50.69	58.74	60.64	62.40	64.21	69.2%
CO ₂ / TPES (t CO ₂ per TJ)	6.0	3.8	2.4	2.7	2.8	2.9	3.0	-49.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.39	0.40	0.39	0.43	0.43	0.44	0.45	15.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	15.7%
CO ₂ / population (t CO ₂ per capita)	0.08	0.05	0.03	0.04	0.04	0.04	0.04	-43.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1.15	1.66	0.02	-	2.83	-4.4%
Main activity producer elec. and heat	-	0.01	-	-	0.01	-49.8%
Unallocated autoproducers	-	-	0.02	-	0.02	x
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.85	0.15	-	-	1.00	15.3%
Transport	-	0.64	-	-	0.64	13.6%
<i>of which: road</i>	-	0.64	-	-	0.64	13.6%
Other	0.30	0.87	-	-	1.17	-18.9%
<i>of which: residential</i>	0.30	0.00	-	-	0.30	-5.2%
Reference Approach	1.19	1.68	0.02	-	2.89	-30.0%
Diff. due to losses and/or transformation	0.05	-	-	-	0.05	
Statistical differences	- 0.01	0.02	-	-	0.01	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.05	-	-	0.05	-85.3%

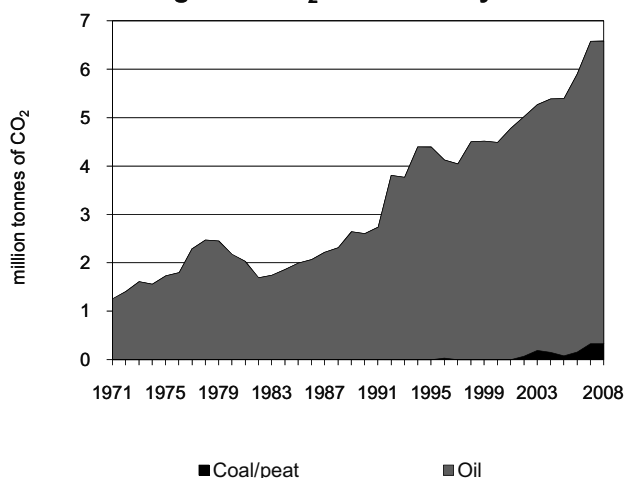
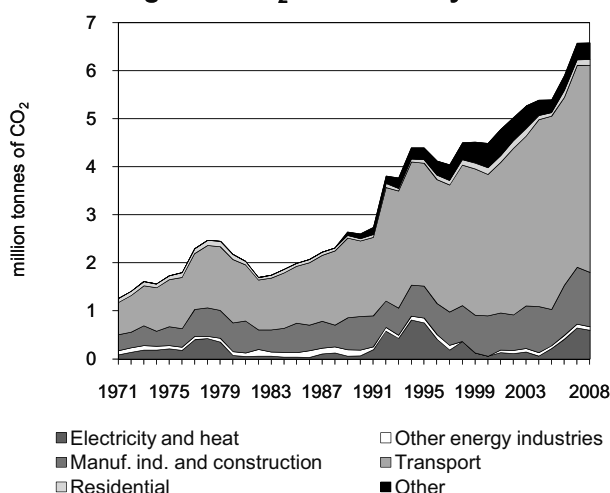
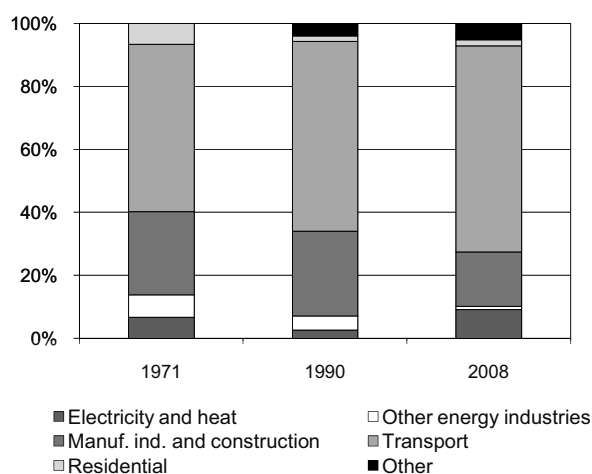
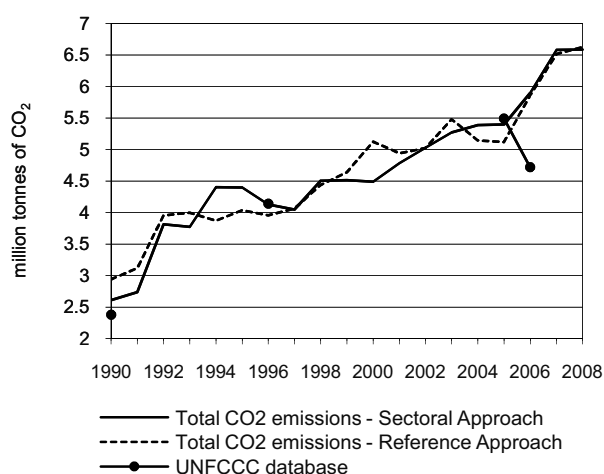
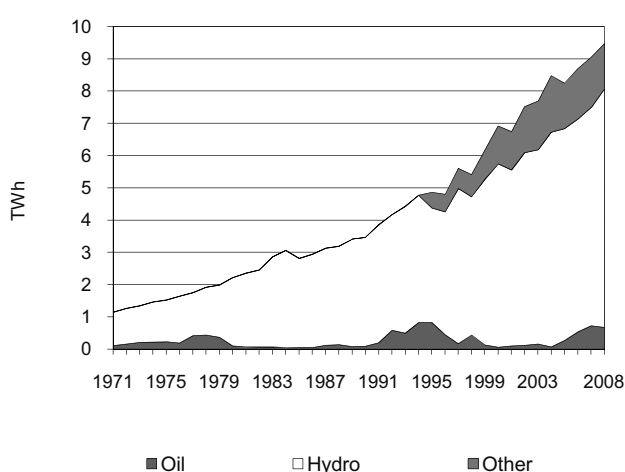
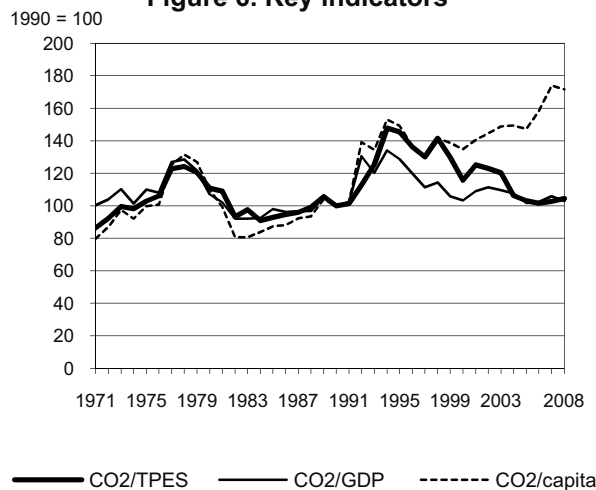
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Non-specified other - oil	0.86	-22.8%	0.7	0.7
Manufacturing industries - coal/peat	0.85	30.1%	0.7	1.4
Road - oil	0.64	13.6%	0.5	1.9
Residential - coal/peat	0.30	42.3%	0.2	2.1
Manufacturing industries - oil	0.15	-30.8%	0.1	2.3
Unallocated autoproducers - gas	0.02	x	0.0	2.3
Main activity prod. elec. and heat - oil	0.01	-49.8%	0.0	2.3
Residential - oil	0.00	-97.1%	0.0	2.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.83</i>	<i>-4.4%</i>	<i>2.3</i>	<i>2.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Costa Rica

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Costa Rica

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.61	4.40	4.49	5.40	5.90	6.58	6.58	152.5%
CO ₂ Reference Approach (Mt of CO ₂)	2.94	4.04	5.12	5.12	5.86	6.52	6.63	125.6%
TPES (PJ)	85	98	126	170	189	209	205	141.8%
TPES (Mtoe)	2.03	2.35	3.02	4.07	4.52	4.98	4.90	141.8%
GDP (billion 2000 USD)	9.58	12.54	15.95	19.48	21.19	22.85	23.52	145.5%
GDP PPP (billion 2000 USD)	19.28	25.23	32.10	39.22	42.66	45.98	47.34	145.5%
Population (millions)	3.08	3.48	3.93	4.33	4.40	4.46	4.53	47.2%
CO ₂ / TPES (t CO ₂ per TJ)	30.8	44.7	35.6	31.7	31.2	31.6	32.1	4.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.27	0.35	0.28	0.28	0.28	0.29	0.28	2.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.14	0.17	0.14	0.14	0.14	0.14	0.14	2.8%
CO ₂ / population (t CO ₂ per capita)	0.85	1.26	1.14	1.25	1.34	1.47	1.45	71.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.33	6.25	-	-	6.58	152.5%
Main activity producer elec. and heat	-	0.60	-	-	0.60	+
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	0.07	-	-	0.07	-39.5%
Manufacturing industries and construction	0.33	0.80	-	-	1.14	61.6%
Transport	-	4.31	-	-	4.31	174.2%
<i>of which: road</i>	-	4.30	-	-	4.30	624.6%
Other	-	0.47	-	-	0.47	218.2%
<i>of which: residential</i>	-	0.12	-	-	0.12	179.0%
Reference Approach	0.36	6.26	-	-	6.63	125.6%
Diff. due to losses and/or transformation	0.03	0.00	-	-	0.04	
Statistical differences	-	0.01	-	-	0.01	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.56	-	-	0.56	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	4.30	624.6%	37.3	37.3
Manufacturing industries - oil	0.80	15.5%	7.0	44.2
Main activity prod. elec. and heat - oil	0.60	+	5.2	49.4
Non-specified other - oil	0.34	235.2%	3.0	52.4
Manufacturing industries - coal/peat	0.33	+	2.9	55.3
Residential - oil	0.12	179.0%	1.1	56.4
Other energy industries - oil	0.07	-39.5%	0.6	57.0
Other transport - oil	0.01	-99.0%	0.1	57.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>6.58</i>	<i>152.5%</i>	<i>57.1</i>	<i>57.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Côte d'Ivoire

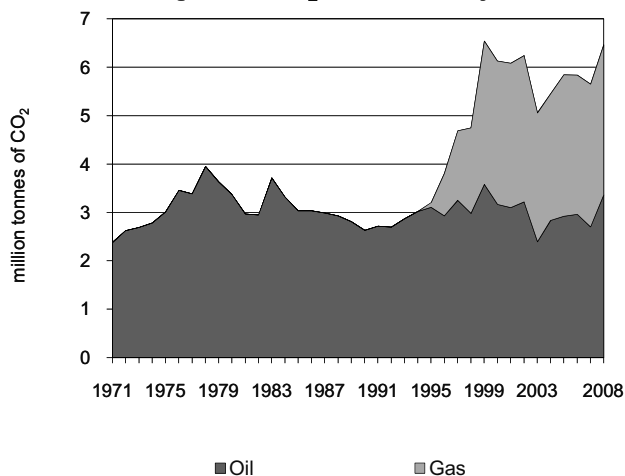
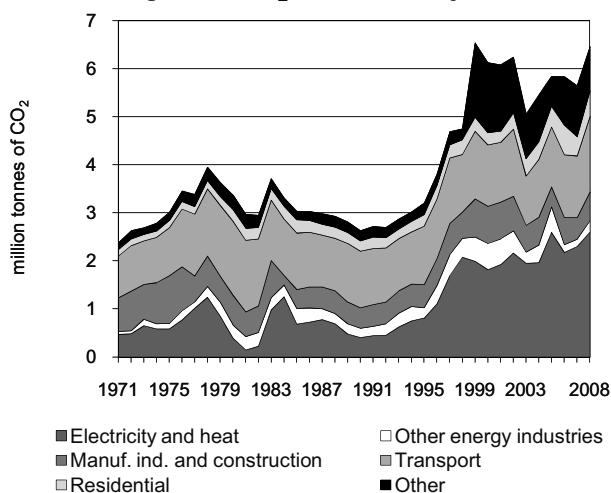
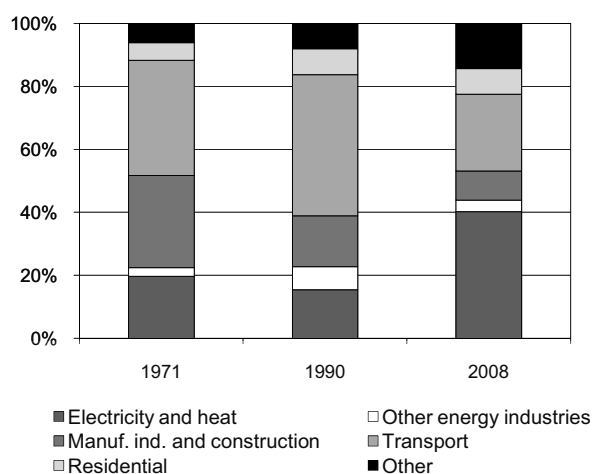
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

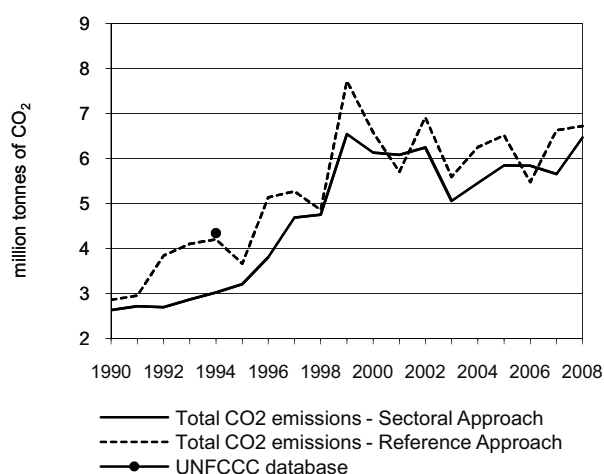


Figure 5. Electricity generation by fuel

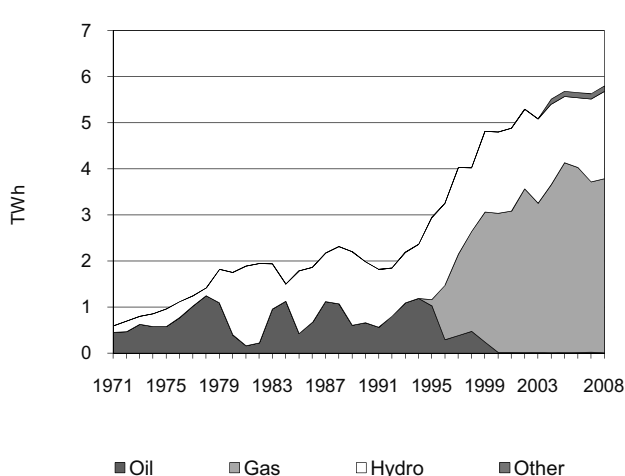
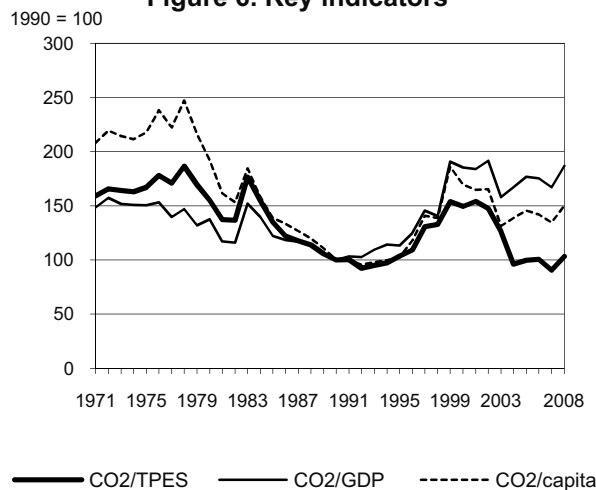


Figure 6. Key indicators



Côte d'Ivoire

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.63	3.21	6.13	5.85	5.84	5.65	6.47	145.5%
CO ₂ Reference Approach (Mt of CO ₂)	2.86	3.67	6.58	6.51	5.48	6.63	6.72	134.8%
TPES (PJ)	181	213	282	403	399	428	430	137.8%
TPES (Mtoe)	4.32	5.08	6.73	9.63	9.54	10.23	10.28	137.8%
GDP (billion 2000 USD)	8.30	8.93	10.42	10.42	10.49	10.67	10.90	31.4%
GDP PPP (billion 2000 USD)	21.17	22.77	26.58	26.58	26.76	27.22	27.82	31.4%
Population (millions)	12.61	14.98	17.28	19.25	19.67	20.12	20.59	63.3%
CO ₂ / TPES (t CO ₂ per TJ)	14.6	15.1	21.7	14.5	14.6	13.2	15.0	3.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.32	0.36	0.59	0.56	0.56	0.53	0.59	86.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.12	0.14	0.23	0.22	0.22	0.21	0.23	86.8%
CO ₂ / population (t CO ₂ per capita)	0.21	0.21	0.35	0.30	0.30	0.28	0.31	50.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	3.36	3.10	-	6.47	145.5%
Main activity producer elec. and heat	-	0.01	2.59	-	2.60	549.1%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	0.21	0.03	-	0.24	22.6%
Manufacturing industries and construction	-	0.60	-	-	0.60	40.2%
Transport	-	1.57	-	-	1.57	33.4%
<i>of which: road</i>	-	1.30	-	-	1.30	26.7%
Other	-	0.97	0.48	-	1.46	240.0%
<i>of which: residential</i>	-	0.53	-	-	0.53	145.8%
Reference Approach	-	3.62	3.10	-	6.72	134.8%
Diff. due to losses and/or transformation	-	0.35	-	-	0.35	
Statistical differences	-	- 0.10	- 0.00	-	- 0.10	
<i>Memo: international marine bunkers</i>	-	0.21	-	-	0.21	77.3%
<i>Memo: international aviation bunkers</i>	-	0.17	-	-	0.17	-36.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	2.59	x	9.7	9.7
Road - oil	1.30	26.7%	4.9	14.6
Manufacturing industries - oil	0.60	40.2%	2.2	16.8
Residential - oil	0.53	145.8%	2.0	18.8
Non-specified other - gas	0.48	x	1.8	20.6
Non-specified other - oil	0.44	109.0%	1.7	22.3
Other transport - oil	0.28	77.3%	1.0	23.3
Other energy industries - oil	0.21	9.0%	0.8	24.1
Other energy industries - gas	0.03	x	0.1	24.2
Main activity prod. elec. and heat - oil	0.01	-97.6%	0.0	24.2
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>6.47</i>	<i>145.5%</i>	<i>24.2</i>	<i>24.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Croatia

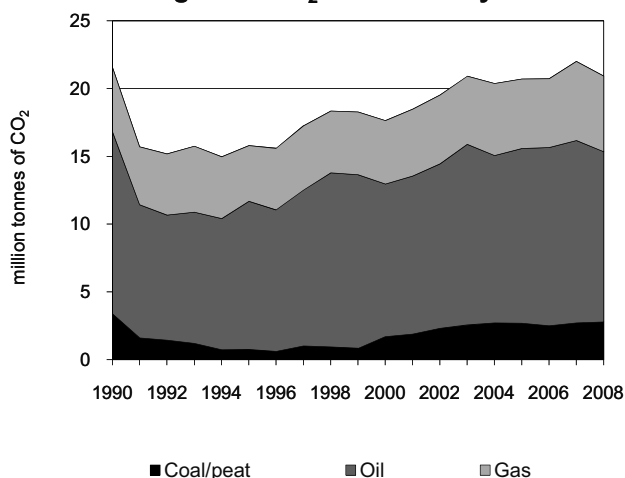
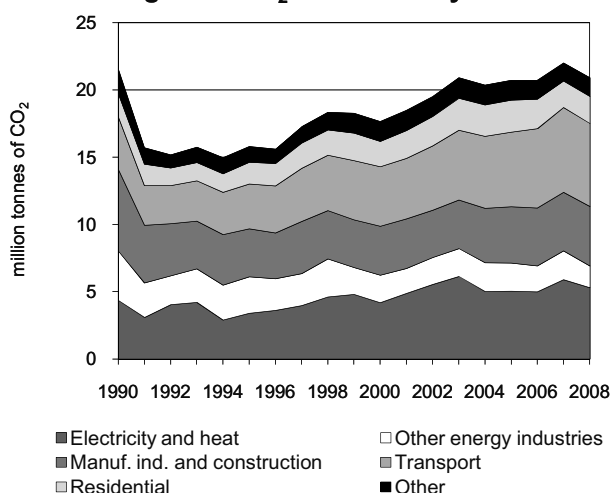
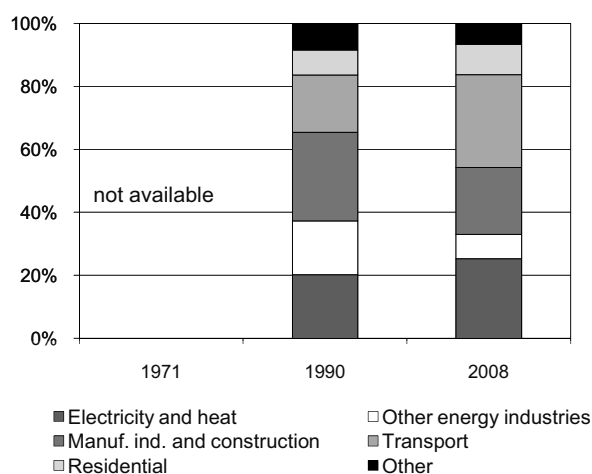
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

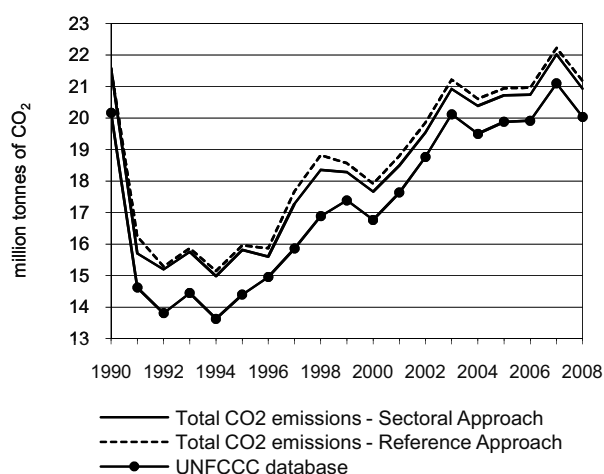


Figure 5. Electricity generation by fuel

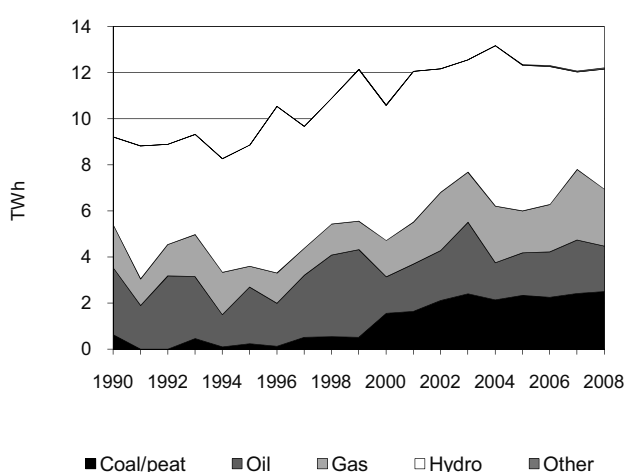
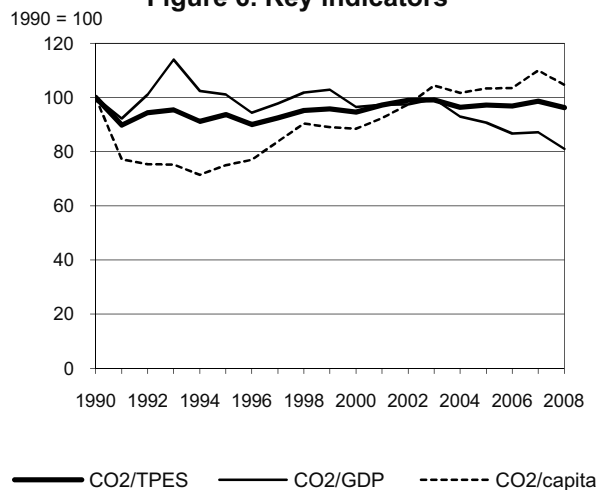


Figure 6. Key indicators



Croatia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	21.57	15.81	17.66	20.72	20.74	22.02	20.93	-3.0%
CO ₂ Reference Approach (Mt of CO ₂)	21.57	15.96	17.91	20.94	20.96	22.22	21.17	-1.8%
TPES (PJ)	377	295	326	373	374	390	380	0.8%
TPES (Mtoe)	9.00	7.05	7.79	8.90	8.94	9.32	9.08	0.8%
GDP (billion 2000 USD)	25.15	18.23	21.35	26.65	27.91	29.44	30.14	19.8%
GDP PPP (billion 2000 USD)	56.02	40.60	47.55	59.36	62.17	65.57	67.12	19.8%
Population (millions)	4.78	4.67	4.43	4.44	4.44	4.44	4.43	-7.2%
CO ₂ / TPES (t CO ₂ per TJ)	57.2	53.6	54.1	55.6	55.4	56.4	55.1	-3.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.86	0.87	0.83	0.78	0.74	0.75	0.69	-19.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.39	0.39	0.37	0.35	0.33	0.34	0.31	-19.0%
CO ₂ / population (t CO ₂ per capita)	4.51	3.39	3.99	4.67	4.67	4.96	4.72	4.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	2.78	12.57	5.58	-	20.93	-3.0%
Main activity producer elec. and heat	2.14	1.48	1.44	-	5.06	28.0%
Unallocated autoproducers	0.00	0.08	0.16	-	0.24	-41.4%
Other energy industries	-	1.22	0.40	-	1.62	-55.9%
Manufacturing industries and construction	0.61	1.87	1.96	-	4.44	-27.0%
Transport	-	6.17	-	-	6.17	57.6%
<i>of which: road</i>	-	5.70	-	-	5.70	81.1%
Other	0.03	1.74	1.62	-	3.40	-3.9%
<i>of which: residential</i>	0.03	0.70	1.28	-	2.01	16.9%
Reference Approach	2.77	12.69	5.71	-	21.17	-1.8%
Diff. due to losses and/or transformation	- 0.01	0.12	0.12	-	0.24	
Statistical differences	0.00	0.01	0.00	-	0.01	
<i>Memo: international marine bunkers</i>	-	0.07	-	-	0.07	-53.6%
<i>Memo: international aviation bunkers</i>	-	0.15	-	-	0.15	4.2%

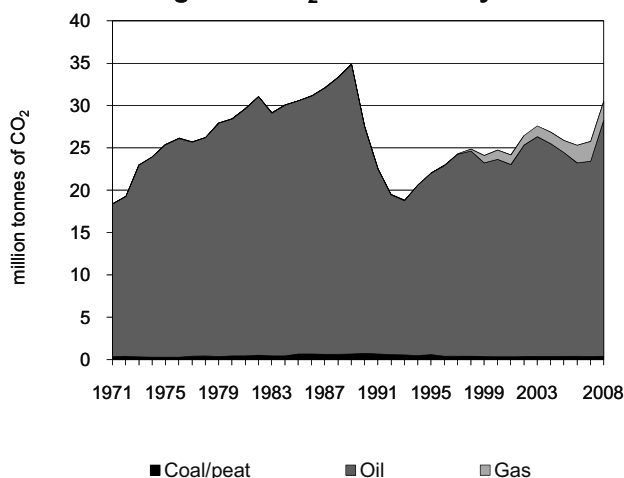
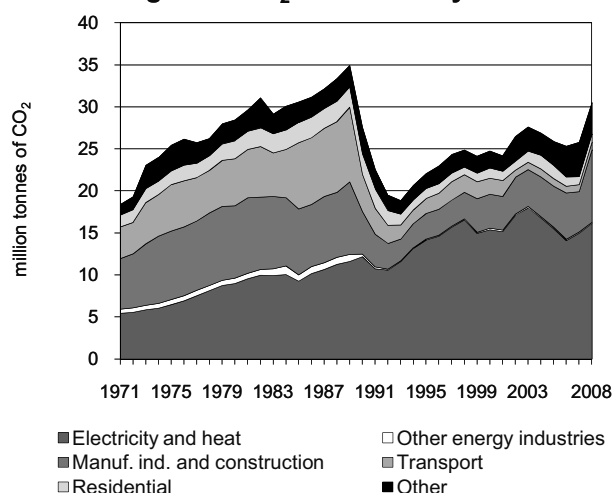
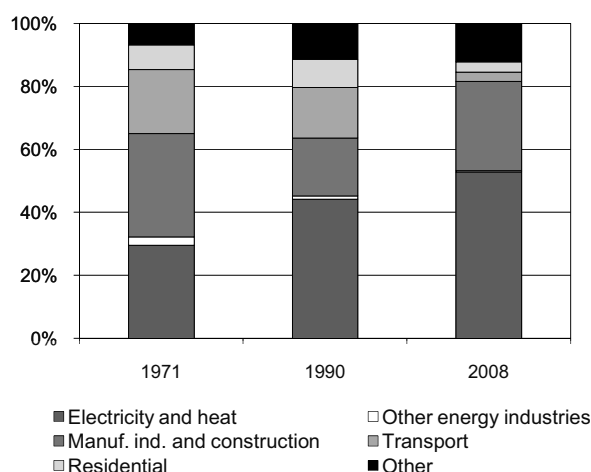
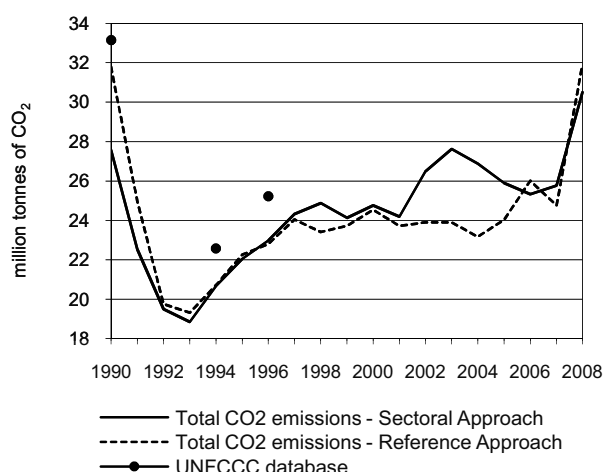
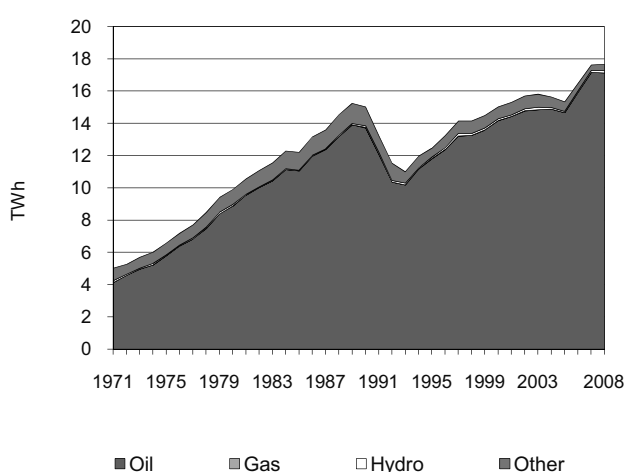
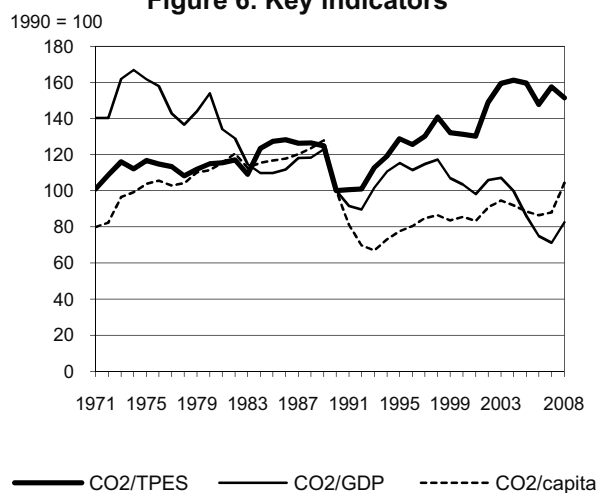
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	5.70	81.1%	17.8	17.8
Main activity prod. elec. and heat - coal/peat	2.14	232.6%	6.7	24.5
Manufacturing industries - gas	1.96	-3.8%	6.1	30.6
Manufacturing industries - oil	1.87	-14.8%	5.8	36.4
Main activity prod. elec. and heat - oil	1.48	-33.8%	4.6	41.1
Main activity prod. elec. and heat - gas	1.44	34.5%	4.5	45.6
Residential - gas	1.28	236.0%	4.0	49.6
Other energy industries - oil	1.22	-50.8%	3.8	53.4
Non-specified other - oil	1.04	-32.0%	3.3	56.6
Residential - oil	0.70	-19.4%	2.2	58.8
Manufacturing industries - coal/peat	0.61	-67.1%	1.9	60.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>20.93</i>	<i>-3.0%</i>	<i>65.4</i>	<i>65.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Cuba

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Cuba

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	27.57	22.05	24.77	25.90	25.33	25.77	30.51	10.7%
CO ₂ Reference Approach (Mt of CO ₂)	31.80	22.25	24.54	24.04	26.01	24.76	31.93	0.4%
TPES (PJ)	691	429	472	406	429	410	505	-26.9%
TPES (Mtoe)	16.49	10.25	11.28	9.71	10.25	9.79	12.06	-26.9%
GDP (billion 2000 USD)	32.49	22.54	28.21	35.46	39.90	42.69	43.57	34.1%
GDP PPP (billion 2000 USD)	74.98	52.01	65.09	81.84	92.07	98.51	100.54	34.1%
Population (millions)	10.61	10.93	11.14	11.26	11.27	11.26	11.25	6.1%
CO ₂ / TPES (t CO ₂ per TJ)	39.9	51.4	52.4	63.7	59.0	62.9	60.4	51.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.85	0.98	0.88	0.73	0.63	0.60	0.70	-17.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.37	0.42	0.38	0.32	0.28	0.26	0.30	-17.5%
CO ₂ / population (t CO ₂ per capita)	2.60	2.02	2.22	2.30	2.25	2.29	2.71	4.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.41	27.88	2.22	-	30.51	10.7%
Main activity producer elec. and heat	-	15.62	-	-	15.62	39.1%
Unallocated autoproducers	-	0.51	-	-	0.51	-46.4%
Other energy industries	-	0.13	-	-	0.13	-55.0%
Manufacturing industries and construction	0.14	6.28	2.21	-	8.63	69.9%
Transport	-	0.91	-	-	0.91	-79.4%
<i>of which: road</i>	-	0.90	-	-	0.90	-79.5%
Other	0.28	4.43	0.00	-	4.71	-15.9%
<i>of which: residential</i>	0.28	0.70	-	-	0.98	-60.2%
Reference Approach	0.08	29.63	2.22	-	31.93	0.4%
Diff. due to losses and/or transformation	- 0.34	1.16	-	-	0.82	
Statistical differences	0.00	0.59	0.00	-	0.59	
<i>Memo: international marine bunkers</i>	-	0.15	-	-	0.15	-79.8%
<i>Memo: international aviation bunkers</i>	-	0.45	-	-	0.45	-55.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	15.62	39.1%	31.2	31.2
Manufacturing industries - oil	6.28	39.3%	12.6	43.8
Non-specified other - oil	3.73	18.9%	7.5	51.2
Manufacturing industries - gas	2.21	+	4.4	55.7
Road - oil	0.90	-79.5%	1.8	57.5
Residential - oil	0.70	-68.3%	1.4	58.9
Unallocated autoproducers - oil	0.51	-45.9%	1.0	59.9
Residential - coal/peat	0.28	15.8%	0.6	60.4
Manufacturing industries - coal/peat	0.14	-73.3%	0.3	60.7
Other energy industries - oil	0.13	-55.0%	0.3	61.0
Other transport - oil	0.01	-57.9%	0.0	61.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>30.51</i>	<i>10.7%</i>	<i>61.0</i>	<i>61.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Cyprus

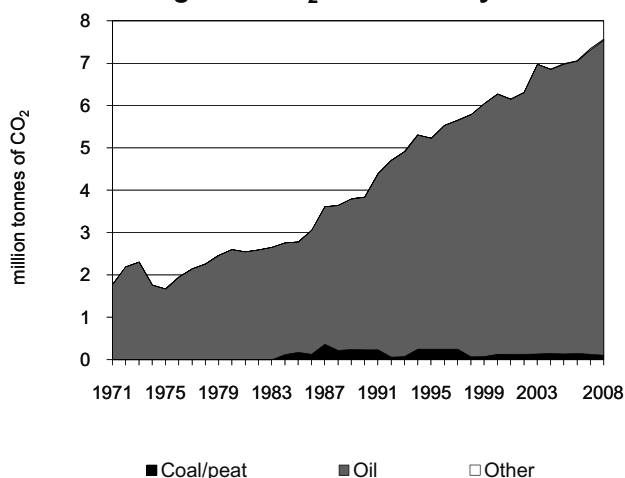
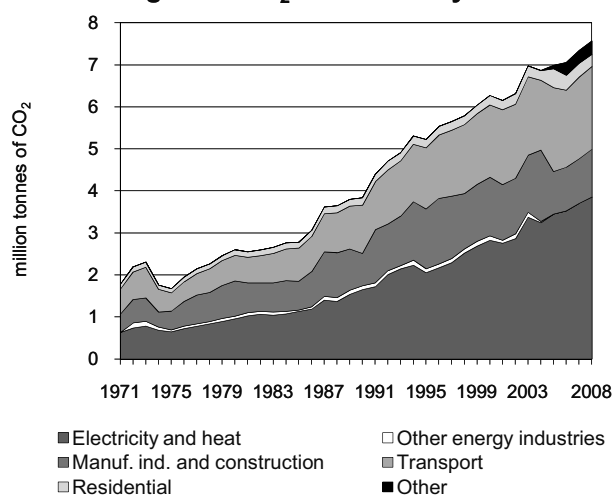
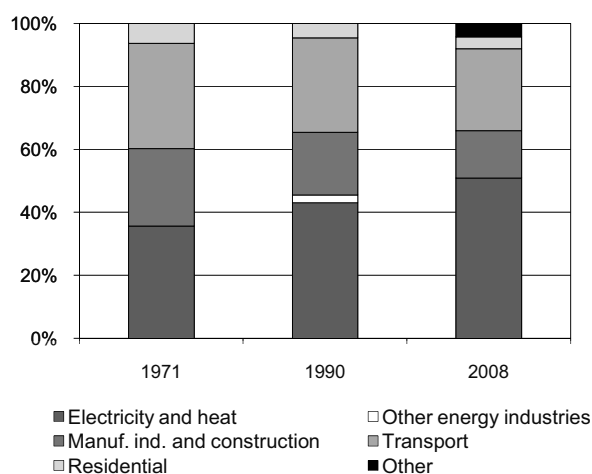
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

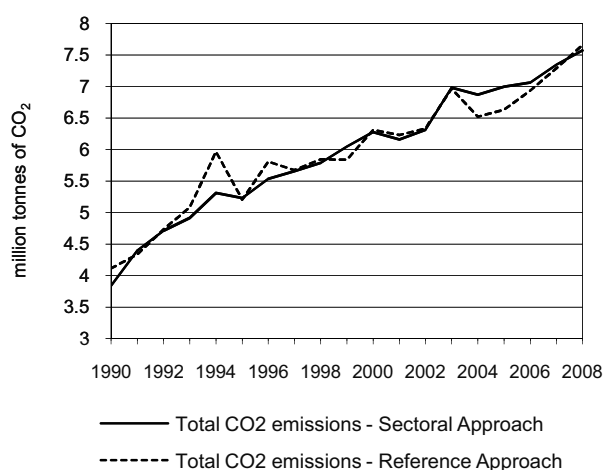


Figure 5. Electricity generation by fuel

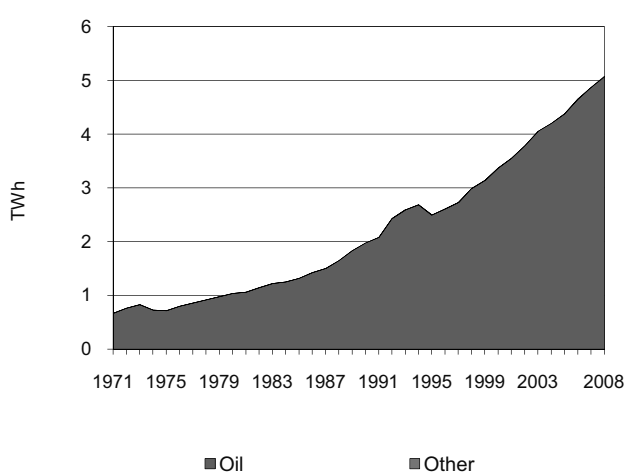
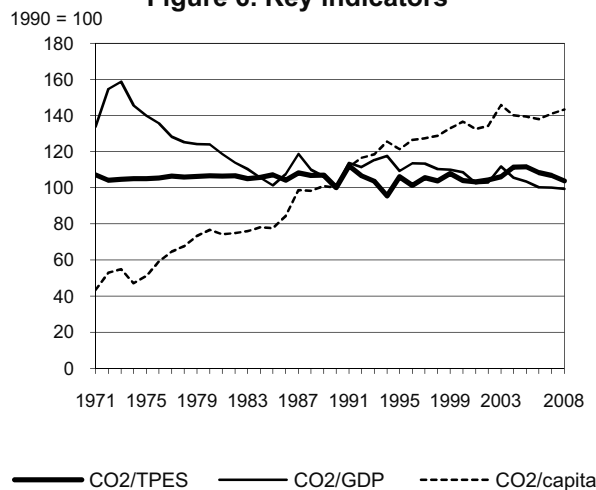


Figure 6. Key indicators



Cyprus

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3.84	5.23	6.27	7.00	7.06	7.35	7.57	97.1%
CO ₂ Reference Approach (Mt of CO ₂)	4.11	5.20	6.31	6.63	6.94	7.29	7.65	86.1%
TPES (PJ)	57	73	89	93	97	102	108	90.1%
TPES (Mtoe)	1.36	1.75	2.14	2.22	2.31	2.44	2.59	90.1%
GDP (billion 2000 USD)	6.20	7.73	9.32	10.92	11.36	11.86	12.29	98.3%
GDP PPP (billion 2000 USD)	9.01	11.24	13.55	15.89	16.53	17.25	17.88	98.3%
Population (millions)	0.58	0.65	0.69	0.76	0.77	0.79	0.80	37.6%
CO ₂ / TPES (t CO ₂ per TJ)	67.4	71.5	70.1	75.3	73.0	72.0	69.9	3.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.62	0.68	0.67	0.64	0.62	0.62	0.62	-0.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.43	0.47	0.46	0.44	0.43	0.43	0.42	-0.6%
CO ₂ / population (t CO ₂ per capita)	6.62	8.03	9.04	9.23	9.14	9.34	9.49	43.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.11	7.43	-	0.03	7.57	97.1%
Main activity producer elec. and heat	-	3.81	-	-	3.81	130.1%
Unallocated autoproducers	-	0.05	-	-	0.05	x
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.11	1.01	-	0.03	1.14	48.5%
Transport	-	1.97	-	-	1.97	71.5%
<i>of which: road</i>	-	1.97	-	-	1.97	71.3%
Other	0.00	0.61	-	-	0.61	242.9%
<i>of which: residential</i>	-	0.29	-	-	0.29	61.5%
Reference Approach	0.11	7.52	-	0.03	7.65	86.1%
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	0.00	0.08	-	-	0.08	
<i>Memo: international marine bunkers</i>	-	0.78	-	-	0.78	336.5%
<i>Memo: international aviation bunkers</i>	-	0.87	-	-	0.87	21.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	3.81	130.1%	39.7	39.7
Road - oil	1.97	71.3%	20.5	60.2
Manufacturing industries - oil	1.01	87.7%	10.5	70.7
Non-specified other - oil	0.32	x	3.3	74.0
Residential - oil	0.29	61.5%	3.0	77.0
Manufacturing industries - coal/peat	0.11	-53.2%	1.1	78.2
Unallocated autoproducers - oil	0.05	x	0.5	78.6
Manufacturing industries -other	0.03	x	0.3	78.9
Other transport - oil	0.00	x	0.0	78.9
Non-specified other sectors - coal/peat	0.00	x	0.0	78.9
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.57</i>	<i>97.1%</i>	<i>78.9</i>	<i>78.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Czech Republic

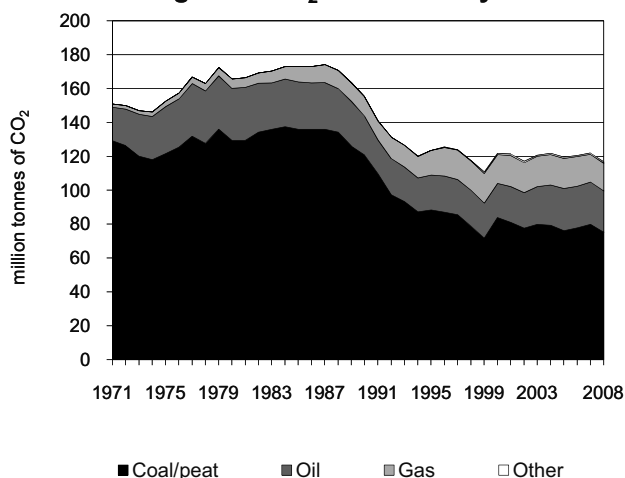
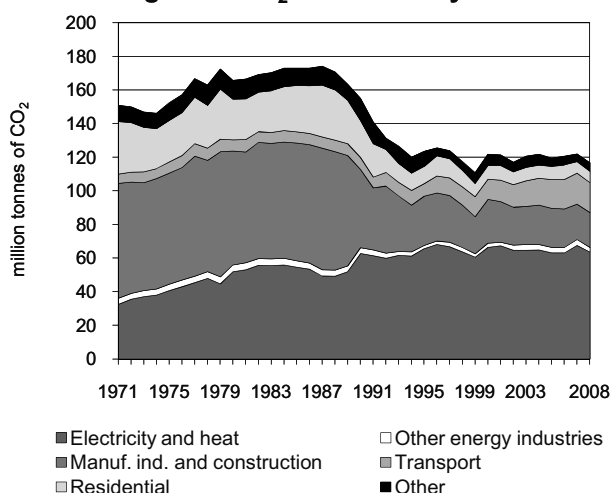
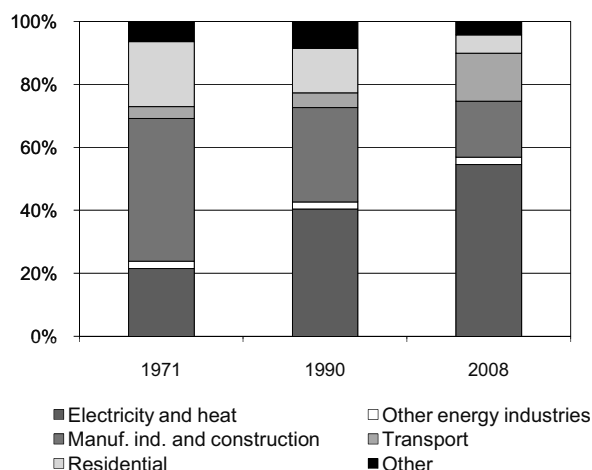
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

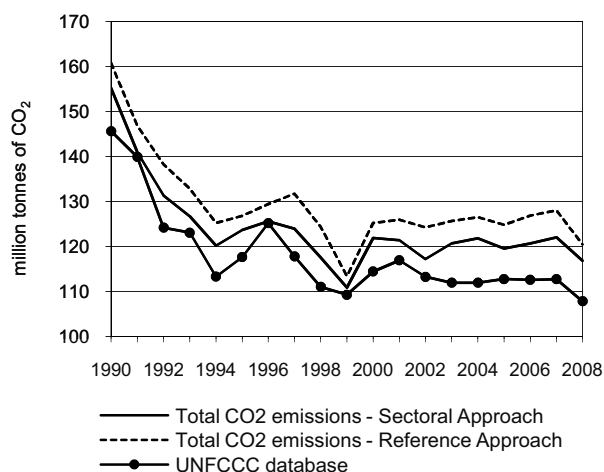


Figure 5. Electricity generation by fuel

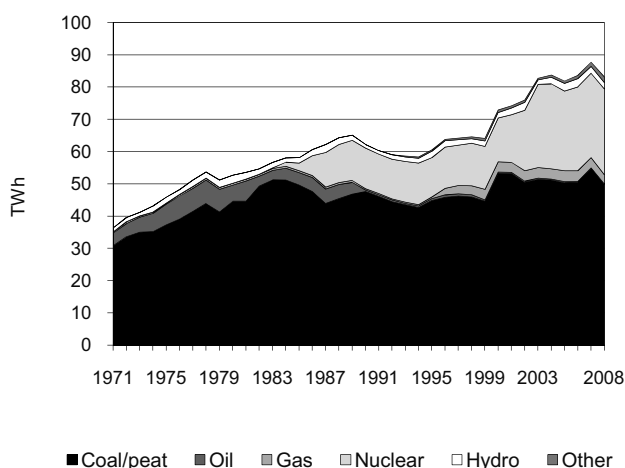
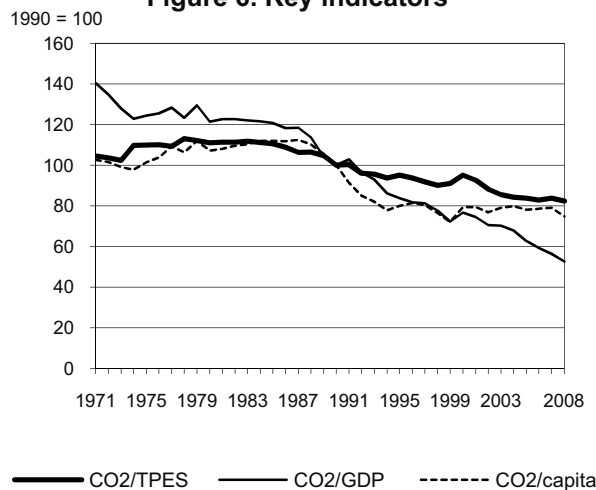


Figure 6. Key indicators



Czech Republic

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	155.14	123.68	121.88	119.59	120.67	122.01	116.83	-24.7%
CO ₂ Reference Approach (Mt of CO ₂)	160.72	126.78	125.25	124.81	126.86	128.03	120.47	-25.0%
TPES (PJ)	2 041	1 712	1 685	1 880	1 919	1 917	1 869	-8.5%
TPES (Mtoe)	48.76	40.90	40.25	44.90	45.84	45.78	44.63	-8.5%
GDP (billion 2000 USD)	55.30	52.69	56.72	68.15	72.78	77.25	79.15	43.1%
GDP PPP (billion 2000 USD)	150.17	143.09	154.03	185.06	197.66	209.78	214.95	43.1%
Population (millions)	10.36	10.33	10.27	10.23	10.27	10.32	10.43	0.6%
CO ₂ / TPES (t CO ₂ per TJ)	76.0	72.2	72.3	63.6	62.9	63.7	62.5	-17.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.81	2.35	2.15	1.75	1.66	1.58	1.48	-47.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.03	0.86	0.79	0.65	0.61	0.58	0.54	-47.4%
CO ₂ / population (t CO ₂ per capita)	14.97	11.97	11.86	11.69	11.75	11.82	11.20	-25.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	75.22	24.46	16.31	0.85	116.83	-24.7%
Main activity producer elec. and heat	53.49	0.34	1.45	0.04	55.32	4.8%
Unallocated autoproducers	7.65	0.10	0.47	0.17	8.39	-16.0%
Other energy industries	1.65	0.88	0.26	-	2.80	-19.7%
Manufacturing industries and construction	10.14	4.30	5.71	0.57	20.72	-55.5%
Transport	0.02	17.64	0.16	-	17.83	148.2%
<i>of which: road</i>	-	16.90	0.01	-	16.92	146.0%
Other	2.27	1.20	8.26	0.06	11.79	-66.5%
<i>of which: residential</i>	1.91	0.05	4.78	-	6.74	-69.3%
Reference Approach	78.83	24.23	16.56	0.85	120.47	-25.0%
Diff. due to losses and/or transformation	2.67	-0.14	0.18	-	2.70	
Statistical differences	0.95	-0.09	0.07	-	0.93	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.99	-	-	0.99	52.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	53.49	5.8%	35.6	35.6
Road - oil	16.90	145.8%	11.2	46.8
Manufacturing industries - coal/peat	10.14	-67.3%	6.7	53.5
Unallocated autoproducers - coal/peat	7.65	-15.5%	5.1	58.6
Manufacturing industries - gas	5.71	1.1%	3.8	62.4
Residential - gas	4.78	123.0%	3.2	65.6
Manufacturing industries - oil	4.30	-56.4%	2.9	68.5
Non-specified other - gas	3.47	63.7%	2.3	70.8
Residential - coal/peat	1.91	-90.2%	1.3	72.0
Other energy industries - coal/peat	1.65	-46.9%	1.1	73.1
Main activity prod. elec. and heat - gas	1.45	39.3%	1.0	74.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>116.83</i>	<i>-24.7%</i>	<i>77.7</i>	<i>77.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Denmark

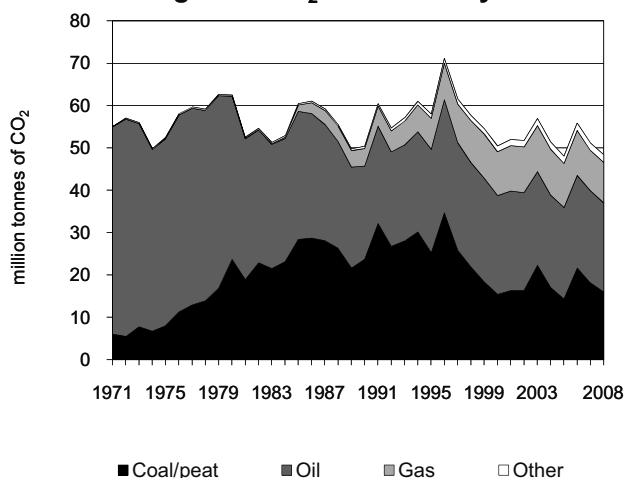
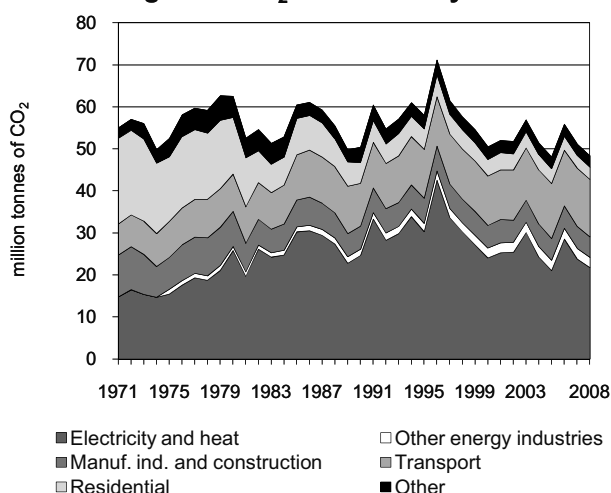
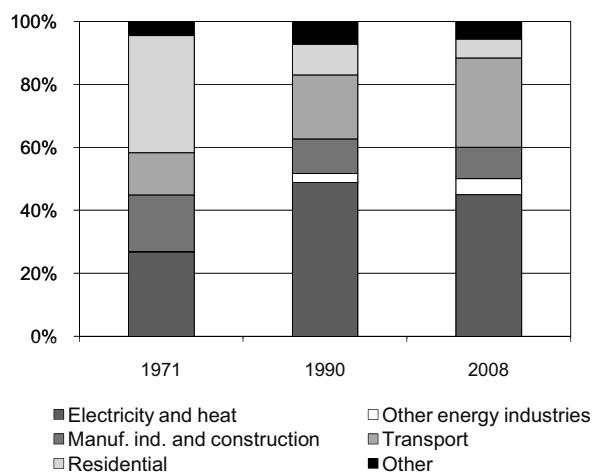
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

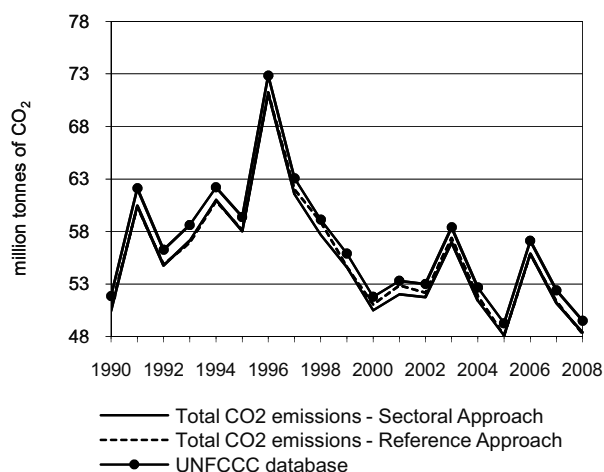


Figure 5. Electricity generation by fuel

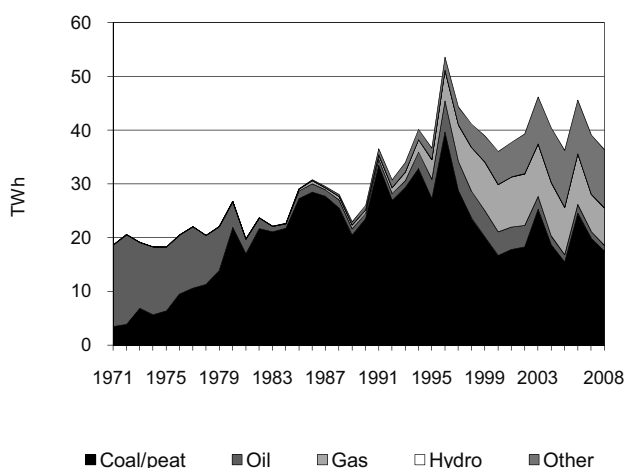
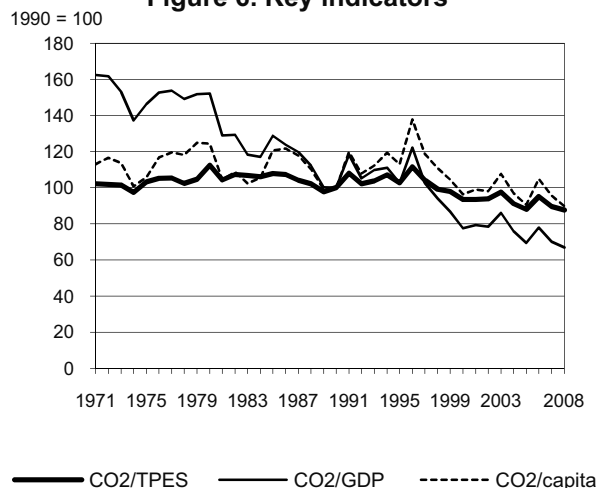


Figure 6. Key indicators



Denmark

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	50.44	58.01	50.50	48.09	55.89	51.18	48.41	-4.0%
CO ₂ Reference Approach (Mt of CO ₂)	50.72	58.11	51.04	48.13	55.82	51.35	48.24	-4.9%
TPES (PJ)	726	814	778	787	846	823	796	9.6%
TPES (Mtoe)	17.34	19.43	18.58	18.80	20.20	19.66	19.01	9.6%
GDP (billion 2000 USD)	123.89	139.06	160.08	170.38	176.17	179.15	177.59	43.4%
GDP PPP (billion 2000 USD)	119.08	133.67	153.87	163.77	169.33	172.20	170.70	43.4%
Population (millions)	5.14	5.23	5.34	5.42	5.44	5.46	5.49	6.8%
CO ₂ / TPES (t CO ₂ per TJ)	69.5	71.3	64.9	61.1	66.1	62.2	60.8	-12.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.41	0.42	0.32	0.28	0.32	0.29	0.27	-33.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.42	0.43	0.33	0.29	0.33	0.30	0.28	-33.1%
CO ₂ / population (t CO ₂ per capita)	9.81	11.09	9.46	8.87	10.28	9.37	8.82	-10.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	15.95	21.10	9.57	1.79	48.41	-4.0%
Main activity producer elec. and heat	15.05	0.78	3.73	0.52	20.08	-15.9%
Unallocated autoproducers	0.00	0.15	0.36	1.18	1.69	121.9%
Other energy industries	-	0.90	1.57	-	2.47	69.6%
Manufacturing industries and construction	0.71	2.28	1.78	0.06	4.83	-12.1%
Transport	-	13.70	-	-	13.70	33.6%
<i>of which: road</i>	-	12.76	-	-	12.76	40.1%
Other	0.18	3.29	2.13	0.03	5.63	-34.4%
<i>of which: residential</i>	0.02	1.44	1.46	-	2.92	-40.5%
Reference Approach	15.59	21.33	9.53	1.79	48.24	-4.9%
Diff. due to losses and/or transformation	- 0.02	1.72	0.04	-	1.74	
Statistical differences	- 0.34	- 1.49	- 0.08	-	- 1.91	
<i>Memo: international marine bunkers</i>	-	3.04	-	-	3.04	0.6%
<i>Memo: international aviation bunkers</i>	-	2.61	-	-	2.61	53.2%

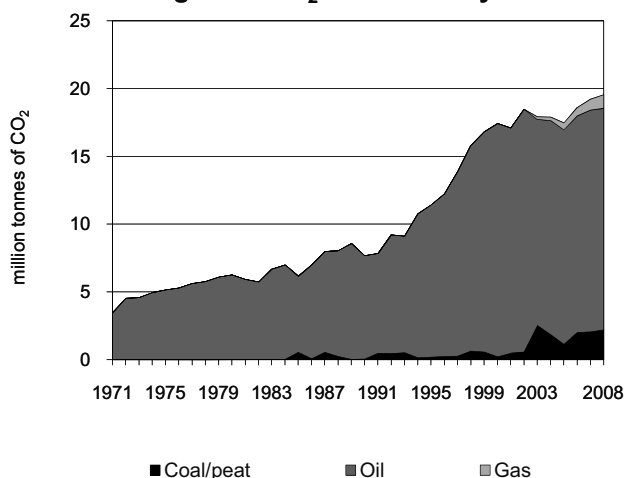
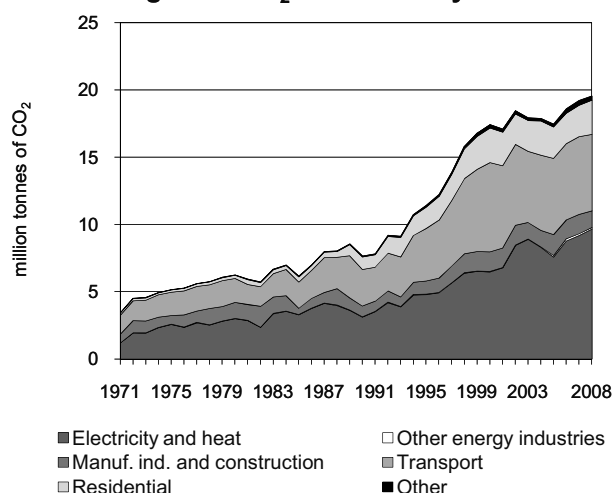
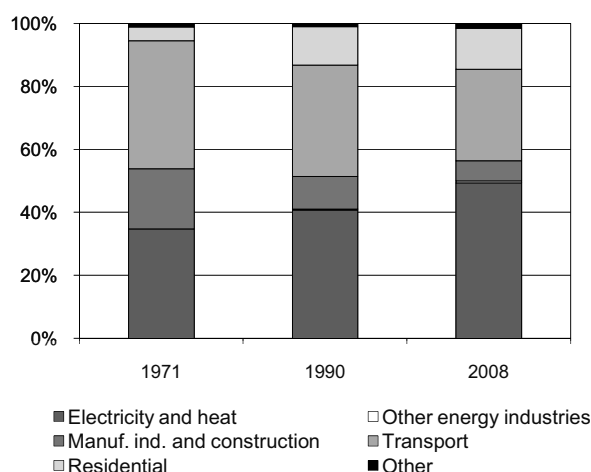
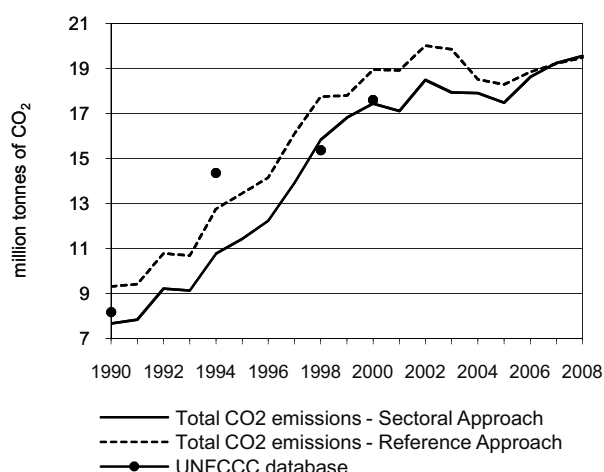
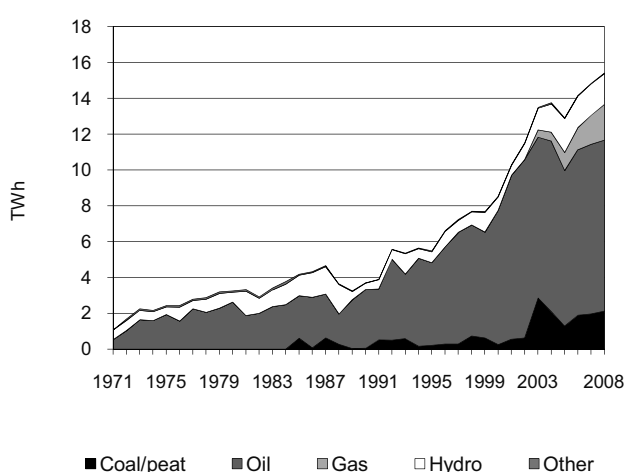
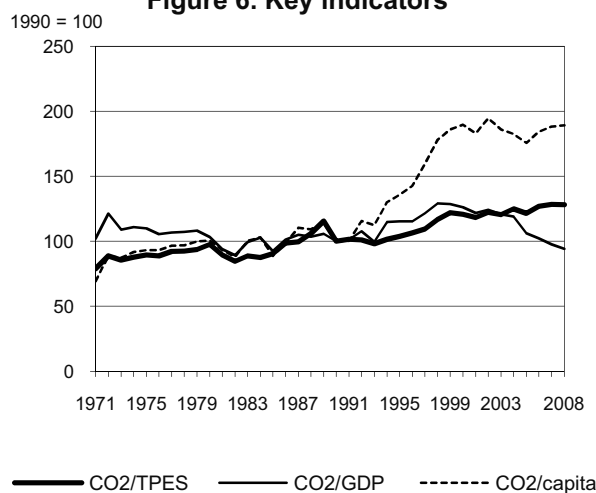
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	15.05	-31.3%	23.7	23.7
Road - oil	12.76	40.1%	20.1	43.8
Main activity prod. elec. and heat - gas	3.73	280.4%	5.9	49.7
Manufacturing industries - oil	2.28	-23.6%	3.6	53.3
Non-specified other - oil	1.85	-36.5%	2.9	56.2
Manufacturing industries - gas	1.78	42.4%	2.8	59.0
Other energy industries - gas	1.57	207.6%	2.5	61.5
Residential - gas	1.46	63.2%	2.3	63.8
Residential - oil	1.44	-63.0%	2.3	66.1
Unallocated autoproducers - other	1.18	164.2%	1.9	67.9
Other transport - oil	0.93	-18.2%	1.5	69.4
<i>Memo: total CO₂ from fuel combustion</i>	48.41	-4.0%	76.3	76.3

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Dominican Republic

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Dominican Republic

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	7.67	11.43	17.44	17.48	18.61	19.24	19.56	155.0%
CO ₂ Reference Approach (Mt of CO ₂)	9.31	13.46	18.94	18.29	18.84	19.22	19.48	109.2%
TPES (PJ)	172	247	324	322	328	335	342	99.1%
TPES (Mtoe)	4.10	5.89	7.73	7.69	7.84	8.01	8.16	99.1%
GDP (billion 2000 USD)	13.32	17.19	24.00	28.54	31.58	34.26	36.07	170.9%
GDP PPP (billion 2000 USD)	37.65	48.61	67.86	80.70	89.31	96.88	102.01	170.9%
Population (millions)	7.30	8.01	8.74	9.47	9.62	9.73	9.84	34.9%
CO ₂ / TPES (t CO ₂ per TJ)	44.7	46.3	53.9	54.3	56.7	57.4	57.2	28.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.58	0.66	0.73	0.61	0.59	0.56	0.54	-5.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.20	0.24	0.26	0.22	0.21	0.20	0.19	-5.9%
CO ₂ / population (t CO ₂ per capita)	1.05	1.43	1.99	1.85	1.94	1.98	1.99	89.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	2.21	16.35	1.00	-	19.56	155.0%
Main activity producer elec. and heat	1.89	4.00	1.00	-	6.89	288.1%
Unallocated autoproducers	-	2.76	-	-	2.76	105.0%
Other energy industries	-	0.13	-	-	0.13	355.9%
Manufacturing industries and construction	0.32	0.92	-	-	1.24	56.9%
Transport	-	5.69	-	-	5.69	109.3%
<i>of which: road</i>	-	4.22	-	-	4.22	60.1%
Other	-	2.85	-	-	2.85	181.8%
<i>of which: residential</i>	-	2.54	-	-	2.54	173.7%
Reference Approach	2.14	16.41	0.93	-	19.48	109.2%
Diff. due to losses and/or transformation	-	- 0.02	-	-	- 0.02	
Statistical differences	- 0.06	0.08	- 0.07	-	- 0.06	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.31	-	-	0.31	172.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	4.22	60.1%	14.1	14.1
Main activity prod. elec. and heat - oil	4.00	130.6%	13.4	27.6
Unallocated autoproducers - oil	2.76	105.0%	9.3	36.8
Residential - oil	2.54	173.7%	8.5	45.3
Main activity prod. elec. and heat - coal/peat	1.89	+	6.3	51.7
Other transport - oil	1.47	+	4.9	56.6
Main activity prod. elec. and heat - gas	1.00	x	3.4	59.9
Manufacturing industries - oil	0.92	16.6%	3.1	63.0
Manufacturing industries - coal/peat	0.32	x	1.1	64.1
Non-specified other - oil	0.31	273.1%	1.0	65.1
Other energy industries - oil	0.13	355.9%	0.4	65.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>19.56</i>	<i>155.0%</i>	<i>65.5</i>	<i>65.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ecuador

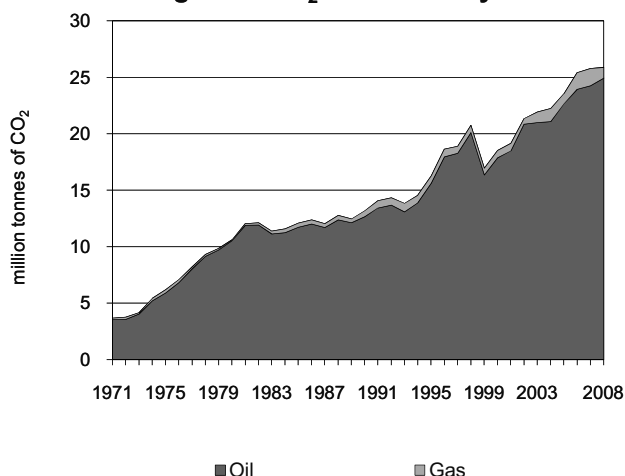
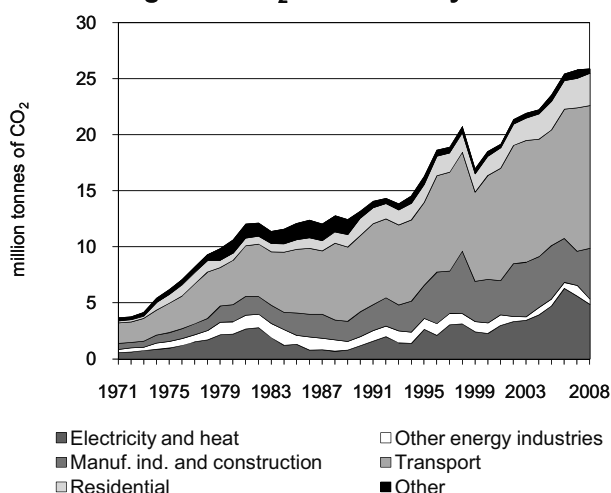
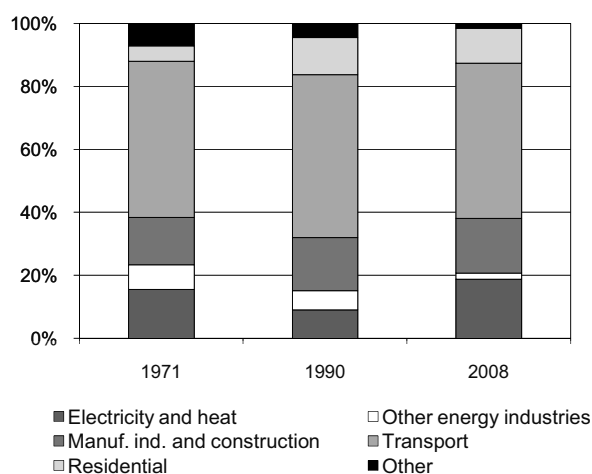
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

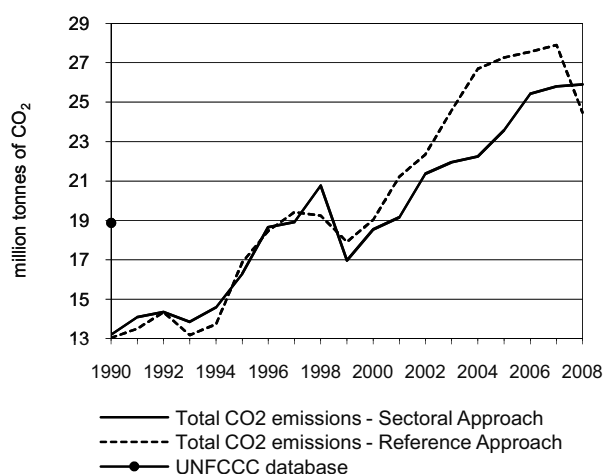


Figure 5. Electricity generation by fuel

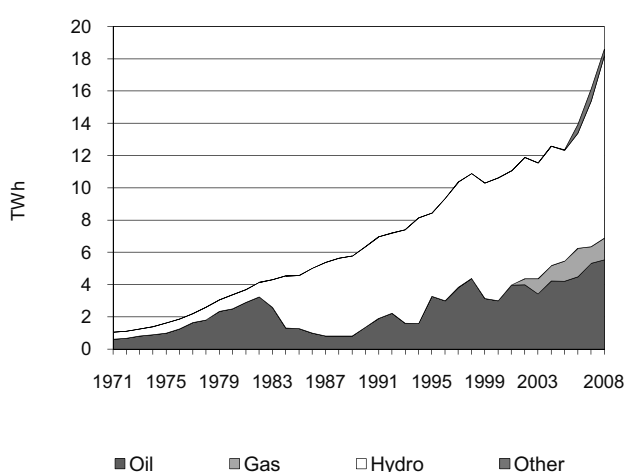
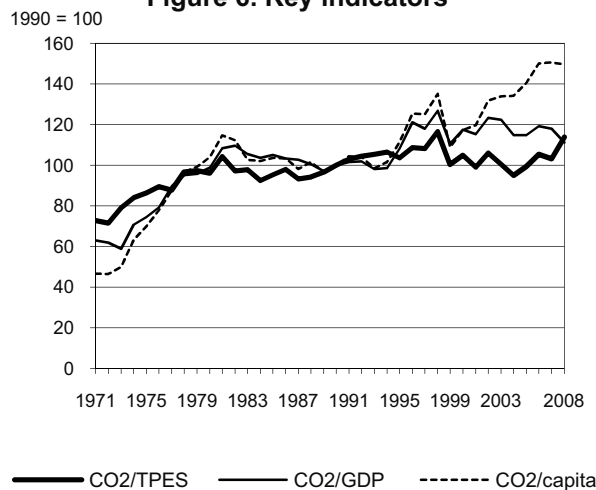


Figure 6. Key indicators



Ecuador

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	13.19	16.29	18.54	23.57	25.44	25.81	25.90	96.3%
CO ₂ Reference Approach (Mt of CO ₂)	13.03	16.87	19.02	27.27	27.56	27.90	24.47	87.8%
TPES (PJ)	251	299	336	451	459	477	433	72.5%
TPES (Mtoe)	6.00	7.14	8.03	10.78	10.97	11.38	10.35	72.5%
GDP (billion 2000 USD)	13.33	15.21	15.94	20.76	21.56	22.10	23.54	76.6%
GDP PPP (billion 2000 USD)	33.24	37.93	39.75	51.76	53.77	55.11	58.69	76.6%
Population (millions)	10.27	11.40	12.31	13.06	13.20	13.34	13.48	31.2%
CO ₂ / TPES (t CO ₂ per TJ)	52.6	54.5	55.1	52.2	55.4	54.1	59.8	13.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.99	1.07	1.16	1.14	1.18	1.17	1.10	11.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.43	0.47	0.46	0.47	0.47	0.44	11.2%
CO ₂ / population (t CO ₂ per capita)	1.28	1.43	1.51	1.80	1.93	1.93	1.92	49.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	24.95	0.95	-	25.90	96.3%
Main activity producer elec. and heat	-	2.69	0.43	-	3.12	162.5%
Unallocated autoproducers	-	1.39	0.36	-	1.75	x
Other energy industries	-	0.33	0.16	-	0.49	-39.9%
Manufacturing industries and construction	-	4.52	-	-	4.52	103.1%
Transport	-	12.73	-	-	12.73	86.8%
<i>of which: road</i>	-	11.52	-	-	11.52	97.5%
Other	-	3.28	-	-	3.28	52.3%
<i>of which: residential</i>	-	2.88	-	-	2.88	84.5%
Reference Approach	-	23.52	0.95	-	24.47	87.8%
Diff. due to losses and/or transformation	-	0.65	-	-	0.65	
Statistical differences	-	- 2.08	- 0.00	-	- 2.08	
<i>Memo: international marine bunkers</i>	-	3.26	-	-	3.26	471.3%
<i>Memo: international aviation bunkers</i>	-	1.04	-	-	1.04	166.7%

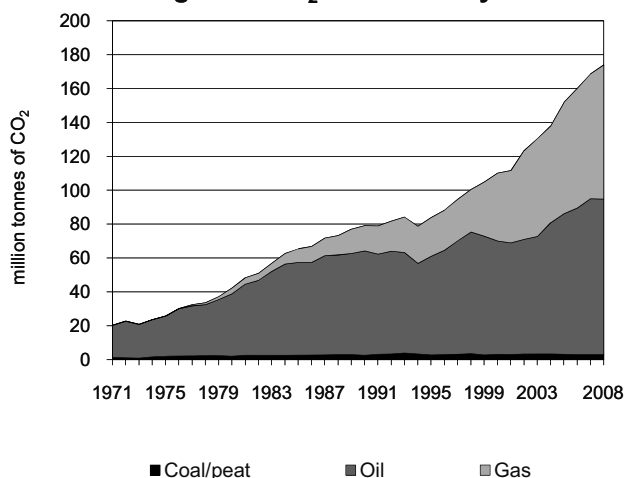
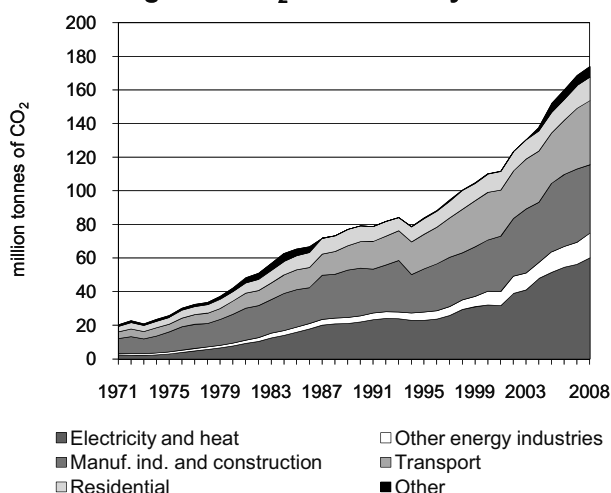
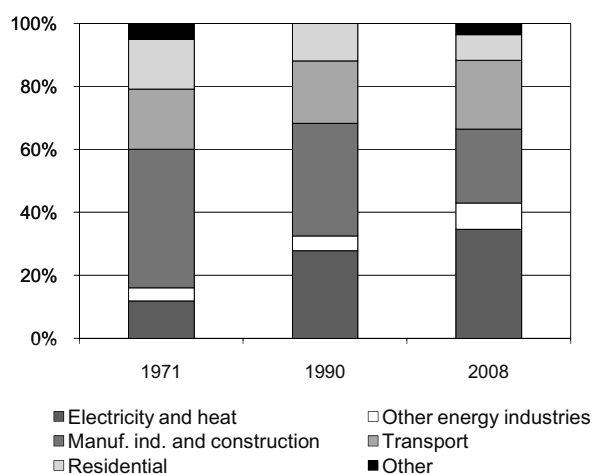
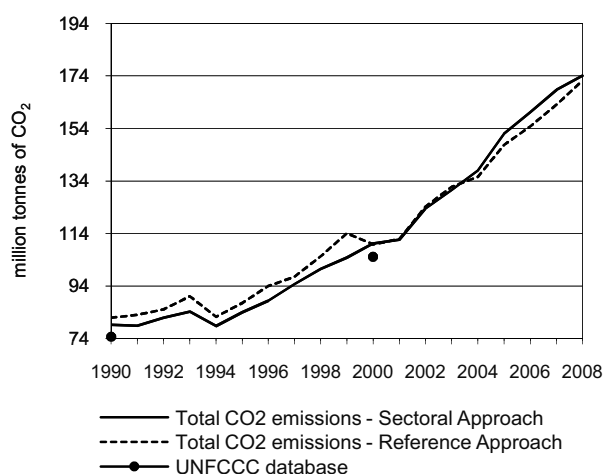
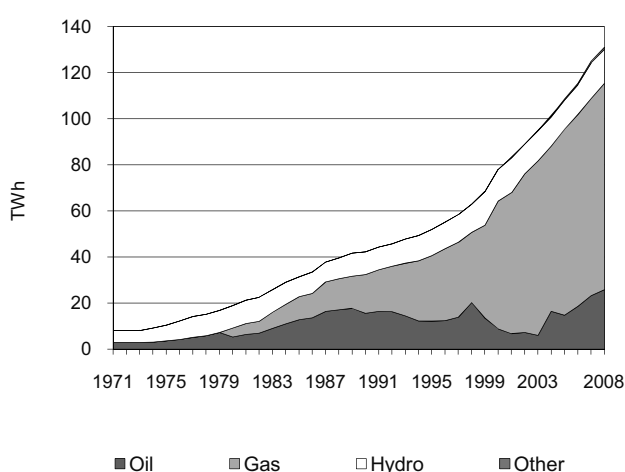
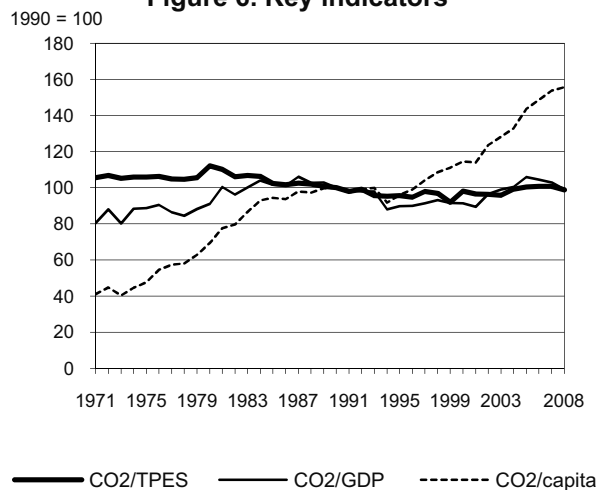
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	11.52	97.5%	21.6	21.6
Manufacturing industries - oil	4.52	103.1%	8.5	30.1
Residential - oil	2.88	84.5%	5.4	35.5
Main activity prod. elec. and heat - oil	2.69	126.0%	5.0	40.5
Unallocated autoproducers - oil	1.39	x	2.6	43.2
Other transport - oil	1.21	23.6%	2.3	45.4
Main activity prod. elec. and heat - gas	0.43	x	0.8	46.3
Non-specified other - oil	0.40	-32.6%	0.7	47.0
Unallocated autoproducers - gas	0.36	x	0.7	47.7
Other energy industries - oil	0.33	15.6%	0.6	48.3
Other energy industries - gas	0.16	-70.3%	0.3	48.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>25.90</i>	<i>96.3%</i>	<i>48.6</i>	<i>48.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Egypt

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Egypt

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	79.21	83.99	110.24	151.94	160.14	168.70	174.03	119.7%
CO ₂ Reference Approach (Mt of CO ₂)	81.97	87.57	109.83	147.67	154.82	163.09	172.18	110.1%
TPES (PJ)	1 332	1 478	1 891	2 547	2 672	2 816	2 960	122.2%
TPES (Mtoe)	31.83	35.30	45.17	60.84	63.83	67.25	70.71	122.2%
GDP (billion 2000 USD)	65.58	77.50	99.84	118.76	126.89	135.87	145.47	121.8%
GDP PPP (billion 2000 USD)	155.89	184.23	237.33	282.30	301.64	322.98	345.79	121.8%
Population (millions)	57.79	63.86	70.17	77.15	78.60	80.06	81.53	41.1%
CO ₂ / TPES (t CO ₂ per TJ)	59.5	56.8	58.3	59.6	59.9	59.9	58.8	-1.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.21	1.08	1.10	1.28	1.26	1.24	1.20	-1.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.51	0.46	0.46	0.54	0.53	0.52	0.50	-0.9%
CO ₂ / population (t CO ₂ per capita)	1.37	1.32	1.57	1.97	2.04	2.11	2.13	55.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	3.00	91.96	79.07	-	174.03	119.7%
Main activity producer elec. and heat	-	16.33	43.92	-	60.25	173.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	3.49	11.17	-	14.66	290.8%
Manufacturing industries and construction	2.99	16.25	21.54	-	40.78	44.0%
Transport	-	37.03	1.04	-	38.07	142.3%
<i>of which: road</i>	-	33.99	1.04	-	35.03	132.3%
Other	0.02	18.86	1.40	-	20.28	115.9%
<i>of which: residential</i>	0.02	12.65	1.40	-	14.08	49.9%
Reference Approach	2.95	90.16	79.07	-	172.18	110.1%
Diff. due to losses and/or transformation	0.15	- 3.34	-	-	- 3.19	
Statistical differences	- 0.21	1.54	0.00	-	1.34	
<i>Memo: international marine bunkers</i>	-	1.51	-	-	1.51	-71.3%
<i>Memo: international aviation bunkers</i>	-	2.75	-	-	2.75	522.9%

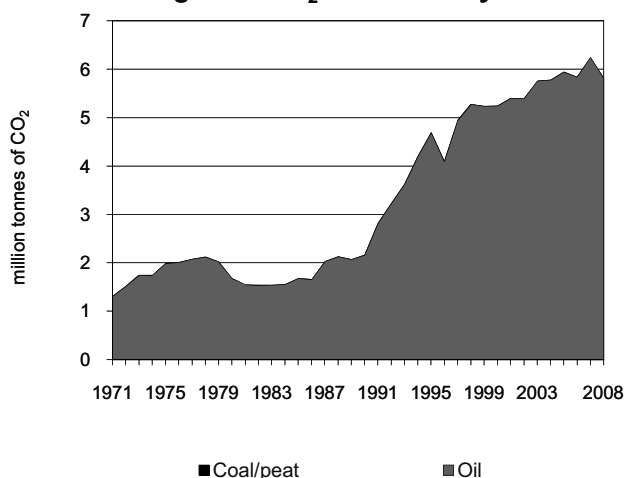
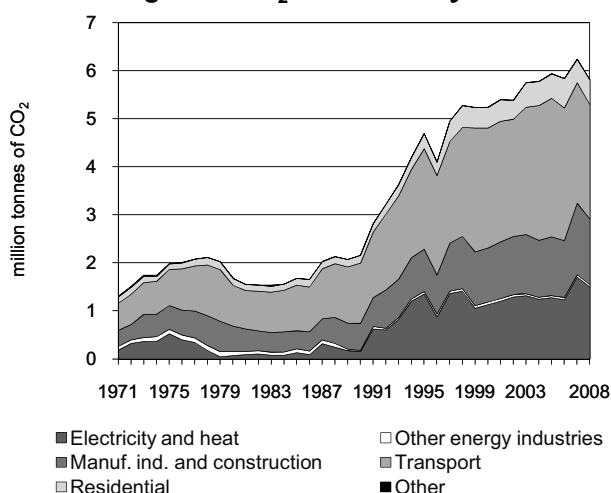
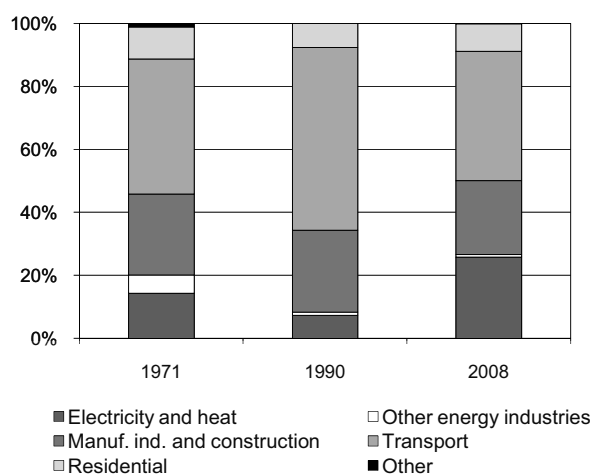
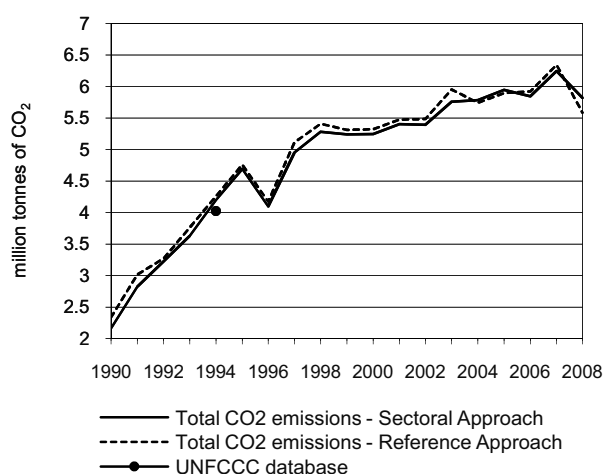
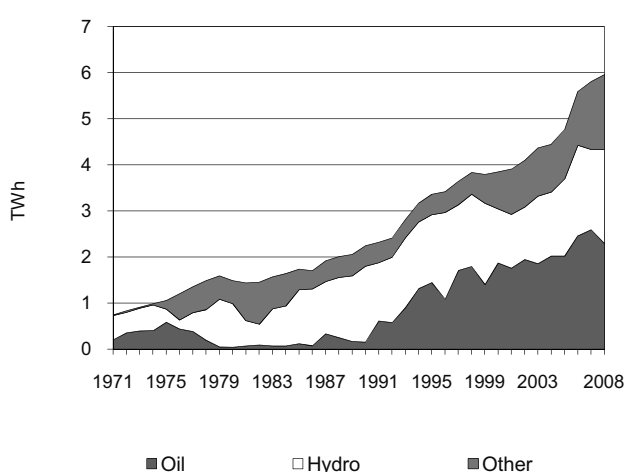
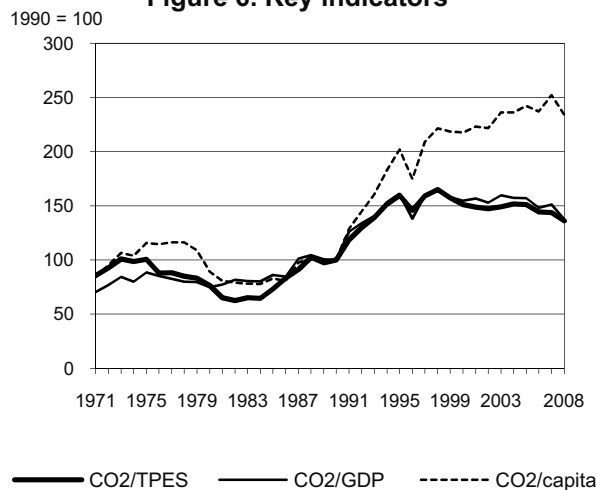
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	43.92	373.3%	16.4	16.4
Road - oil	33.99	125.4%	12.7	29.1
Manufacturing industries - gas	21.54	358.3%	8.1	37.2
Main activity prod. elec. and heat - oil	16.33	28.0%	6.1	43.3
Manufacturing industries - oil	16.25	-22.3%	6.1	49.4
Residential - oil	12.65	37.1%	4.7	54.1
Other energy industries - gas	11.17	+	4.2	58.3
Non-specified other - oil	6.20	x	2.3	60.6
Other energy industries - oil	3.49	18.3%	1.3	61.9
Other transport - oil	3.04	379.4%	1.1	63.1
Manufacturing industries - coal/peat	2.99	10.7%	1.1	64.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>174.03</i>	<i>119.7%</i>	<i>65.1</i>	<i>65.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

El Salvador

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


El Salvador

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.16	4.69	5.24	5.95	5.84	6.25	5.82	169.2%
CO ₂ Reference Approach (Mt of CO ₂)	2.34	4.76	5.32	5.89	5.92	6.34	5.59	139.0%
TPES (PJ)	103	141	166	188	194	208	204	97.8%
TPES (Mtoe)	2.47	3.36	3.96	4.50	4.62	4.96	4.88	97.8%
GDP (billion 2000 USD)	8.37	11.30	13.13	14.68	15.30	16.01	16.42	96.1%
GDP PPP (billion 2000 USD)	18.40	24.84	28.87	32.28	33.63	35.19	36.09	96.1%
Population (millions)	5.33	5.73	5.95	6.06	6.08	6.11	6.13	15.1%
CO ₂ / TPES (t CO ₂ per TJ)	20.9	33.4	31.6	31.6	30.2	30.1	28.5	36.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.42	0.40	0.41	0.38	0.39	0.35	37.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.12	0.19	0.18	0.18	0.17	0.18	0.16	37.3%
CO ₂ / population (t CO ₂ per capita)	0.41	0.82	0.88	0.98	0.96	1.02	0.95	133.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	5.82	-	-	5.82	169.2%
Main activity producer elec. and heat	-	1.50	-	-	1.50	911.7%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	0.05	-	-	0.05	114.3%
Manufacturing industries and construction	-	1.37	-	-	1.37	142.7%
Transport	-	2.38	-	-	2.38	90.3%
<i>of which: road</i>	-	2.38	-	-	2.38	90.3%
Other	-	0.52	-	-	0.52	213.5%
<i>of which: residential</i>	-	0.51	-	-	0.51	209.9%
Reference Approach	-	5.59	-	-	5.59	139.0%
Diff. due to losses and/or transformation	-	- 0.01	-	-	- 0.01	
Statistical differences	-	- 0.23	-	-	- 0.23	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.34	-	-	0.34	217.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	2.38	90.3%	21.1	21.1
Main activity prod. elec. and heat - oil	1.50	911.7%	13.3	34.4
Manufacturing industries - oil	1.37	142.7%	12.1	46.5
Residential - oil	0.51	209.9%	4.5	51.0
Other energy industries - oil	0.05	114.3%	0.4	51.5
Non-specified other - oil	0.01	x	0.1	51.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.82</i>	<i>169.2%</i>	<i>51.5</i>	<i>51.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Eritrea

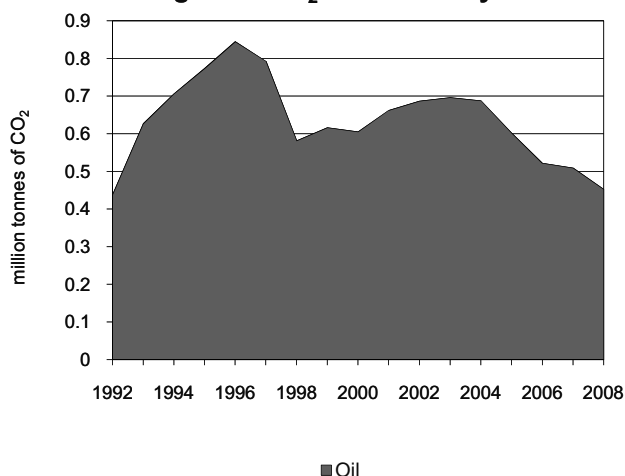
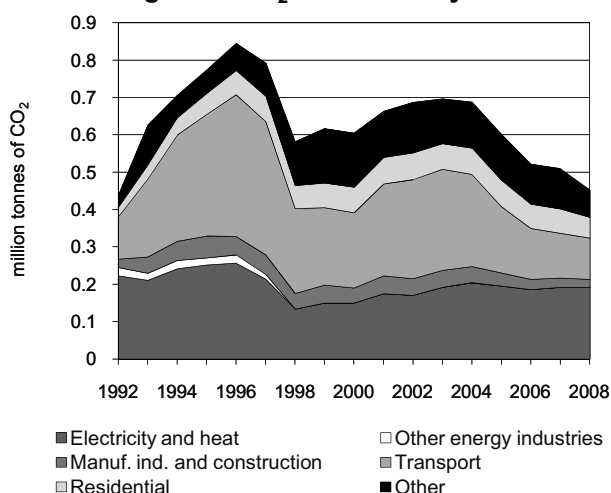
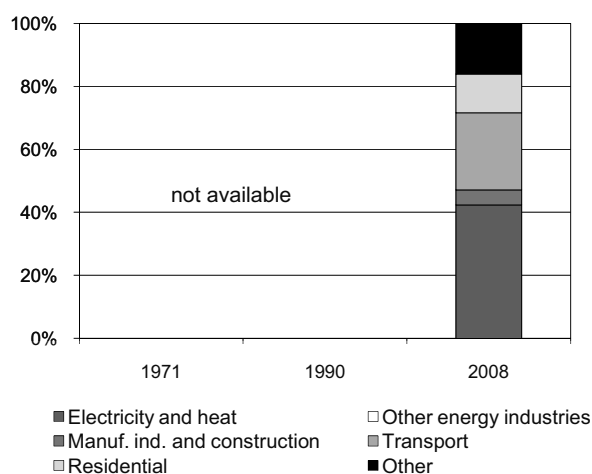
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

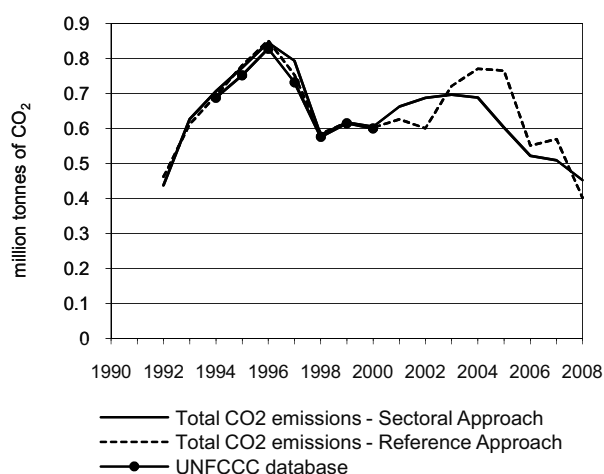


Figure 5. Electricity generation by fuel

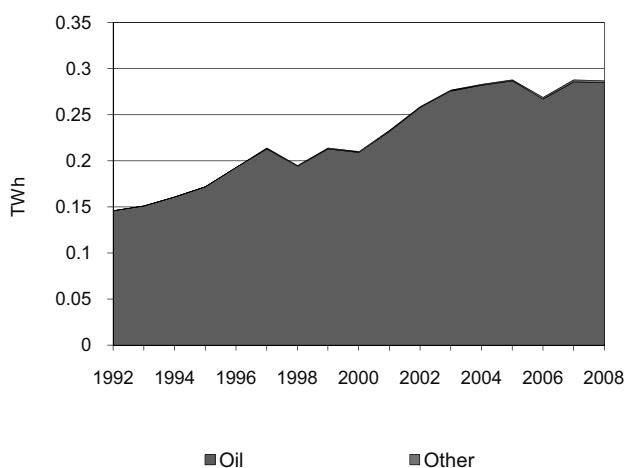
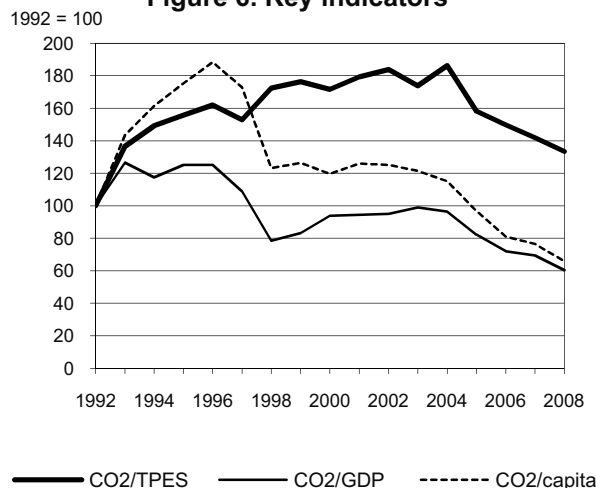


Figure 6. Key indicators



Eritrea *
Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	..	0.77	0.61	0.60	0.52	0.51	0.45	..
CO ₂ Reference Approach (Mt of CO ₂)	..	0.78	0.60	0.77	0.55	0.57	0.40	..
TPES (PJ)	..	42	30	32	29	30	29	..
TPES (Mtoe)	..	1.00	0.71	0.76	0.70	0.72	0.68	..
GDP (billion 2000 USD)	..	0.61	0.63	0.72	0.71	0.72	0.74	..
GDP PPP (billion 2000 USD)	..	3.49	3.64	4.13	4.09	4.14	4.23	..
Population (millions)	..	3.21	3.68	4.53	4.69	4.84	5.00	..
CO ₂ / TPES (t CO ₂ per TJ)	..	18.5	20.4	18.8	17.8	16.9	15.9	..
CO ₂ / GDP (kg CO ₂ per 2000 USD)	..	1.27	0.95	0.84	0.73	0.71	0.61	..
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	..	0.22	0.17	0.15	0.13	0.12	0.11	..
CO ₂ / population (t CO ₂ per capita)	..	0.24	0.16	0.13	0.11	0.11	0.09	..

Ratios are based on the Sectoral Approach.

* Prior to 1992, data for Eritrea were included in Ethiopia.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach	-	0.45	-	-	0.45	..
Main activity producer elec. and heat	-	0.18	-	-	0.18	..
Unallocated autoproducers	-	0.01	-	-	0.01	..
Other energy industries	-	-	-	-	-	..
Manufacturing industries and construction	-	0.02	-	-	0.02	..
Transport	-	0.11	-	-	0.11	..
<i>of which: road</i>	-	<i>0.11</i>	-	-	<i>0.11</i>	..
Other	-	0.13	-	-	0.13	..
<i>of which: residential</i>	-	<i>0.06</i>	-	-	<i>0.06</i>	..
Reference Approach	-	0.40	-	-	0.40	..
Diff. due to losses and/or transformation	-	-	-	-	-	..
Statistical differences	-	- 0.05	-	-	- 0.05	..
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	<i>0.01</i>	-	-	<i>0.01</i>	..

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - oil	0.18	..	4.1	4.1
Road - oil	0.11	..	2.5	6.6
Non-specified other - oil	0.07	..	1.6	8.2
Residential - oil	0.06	..	1.3	9.5
Manufacturing industries - oil	0.02	..	0.5	10.0
Unallocated autoproducers - oil	0.01	..	0.2	10.2
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>0.45</i>	<i>..</i>	<i>10.2</i>	<i>10.2</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Estonia

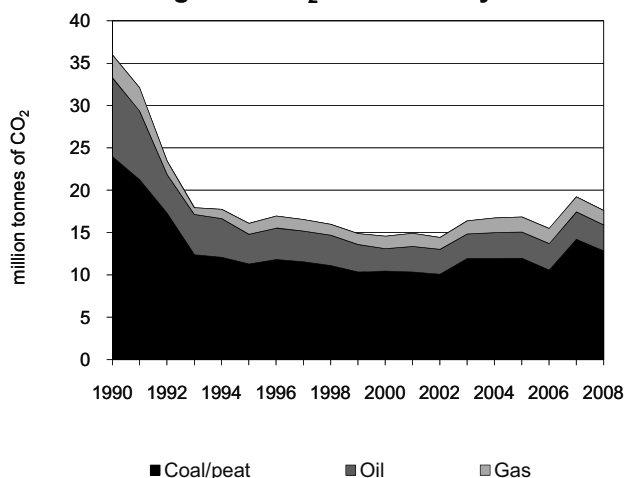
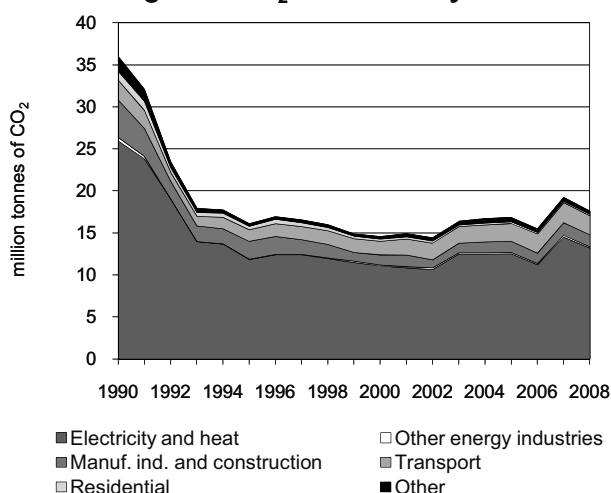
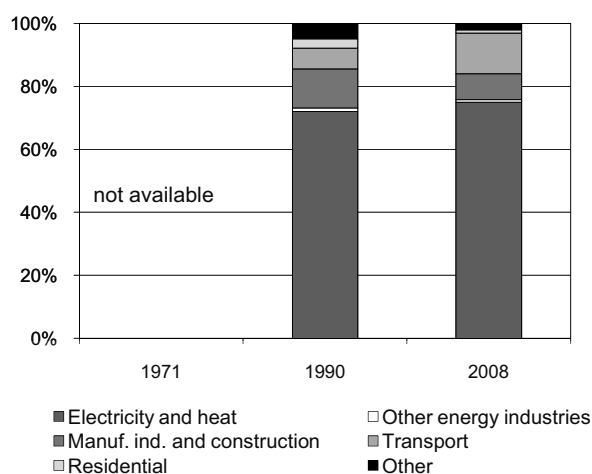
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

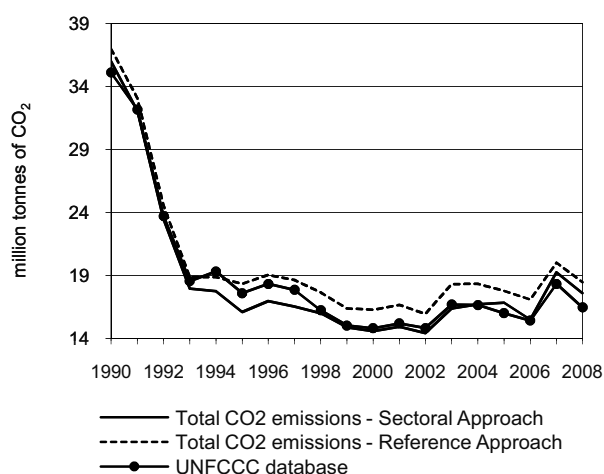


Figure 5. Electricity generation by fuel

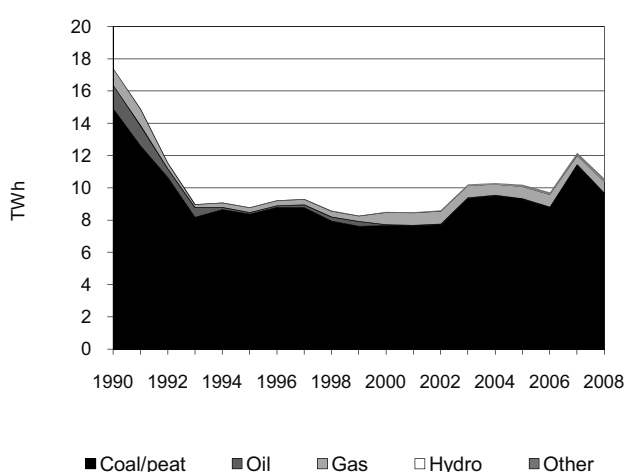
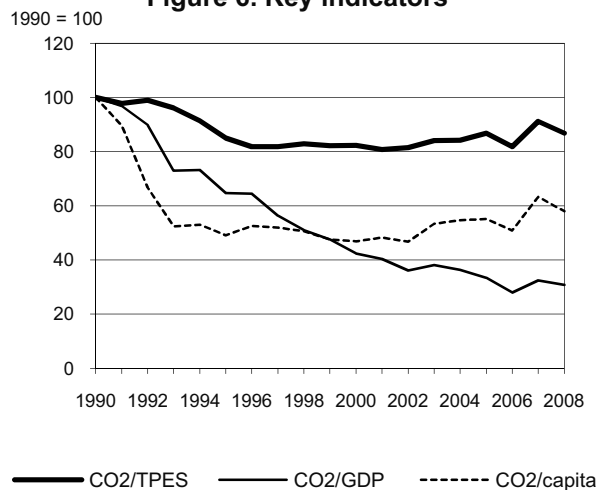


Figure 6. Key indicators



Estonia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	36.01	16.10	14.59	16.85	15.51	19.25	17.62	-51.1%
CO ₂ Reference Approach (Mt of CO ₂)	36.99	18.34	16.30	17.78	17.10	20.01	18.46	-50.1%
TPES (PJ)	401	211	197	216	211	235	226	-43.6%
TPES (Mtoe)	9.57	5.04	4.71	5.16	5.04	5.61	5.40	-43.6%
GDP (billion 2000 USD)	5.94	4.11	5.68	8.32	9.15	9.81	9.46	59.2%
GDP PPP (billion 2000 USD)	13.59	9.79	13.53	19.82	21.80	23.37	22.53	65.8%
Population (millions)	1.59	1.45	1.37	1.35	1.35	1.34	1.34	-15.6%
CO ₂ / TPES (t CO ₂ per TJ)	89.9	76.4	73.9	77.9	73.6	81.9	77.9	-13.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	6.06	3.92	2.57	2.03	1.70	1.96	1.86	-69.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.65	1.64	1.08	0.85	0.71	0.82	0.78	-70.5%
CO ₂ / population (t CO ₂ per capita)	22.67	11.12	10.63	12.50	11.53	14.35	13.14	-42.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	12.87	3.04	1.71	-	17.62	-51.1%
Main activity producer elec. and heat	11.95	0.18	0.82	-	12.95	-49.0%
Unallocated autoproducers	0.09	0.02	0.14	-	0.26	-51.1%
Other energy industries	0.07	0.04	0.03	-	0.14	-66.5%
Manufacturing industries and construction	0.69	0.21	0.54	-	1.45	-67.5%
Transport	-	2.27	-	-	2.27	-3.6%
<i>of which: road</i>	-	2.17	-	-	2.17	1.0%
Other	0.06	0.31	0.18	-	0.55	-80.7%
<i>of which: residential</i>	0.04	0.03	0.11	-	0.19	-82.2%
Reference Approach	15.00	1.75	1.71	-	18.46	-50.1%
Diff. due to losses and/or transformation	3.16	- 1.29	-	-	1.87	
Statistical differences	- 1.03	0.00	-	-	- 1.03	
<i>Memo: international marine bunkers</i>	-	0.79	-	-	0.79	39.2%
<i>Memo: international aviation bunkers</i>	-	0.08	-	-	0.08	-12.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	11.95	-42.1%	55.9	55.9
Road - oil	2.17	1.0%	10.1	66.0
Main activity prod. elec. and heat - gas	0.82	-53.9%	3.8	69.8
Manufacturing industries - coal/peat	0.69	-54.2%	3.2	73.0
Manufacturing industries - gas	0.54	-25.5%	2.5	75.6
Non-specified other - oil	0.28	-74.7%	1.3	76.9
Manufacturing industries - oil	0.21	-90.4%	1.0	77.9
Main activity prod. elec. and heat - oil	0.18	-94.1%	0.8	78.7
Unallocated autoproducers - gas	0.14	183.3%	0.6	79.4
Residential - gas	0.11	-13.6%	0.5	79.9
Other transport - oil	0.11	-44.7%	0.5	80.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>17.62</i>	<i>-51.1%</i>	<i>82.3</i>	<i>82.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ethiopia

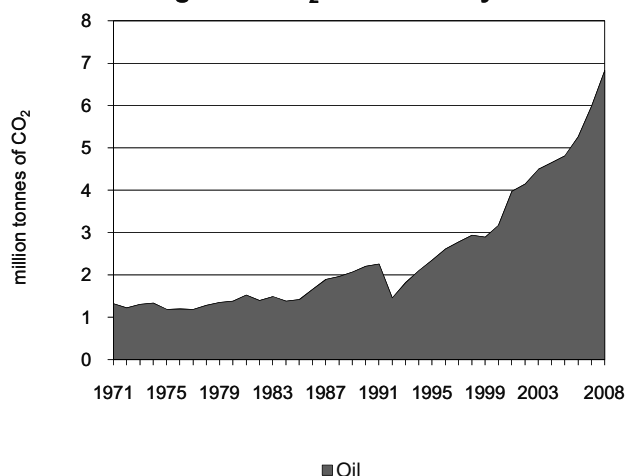
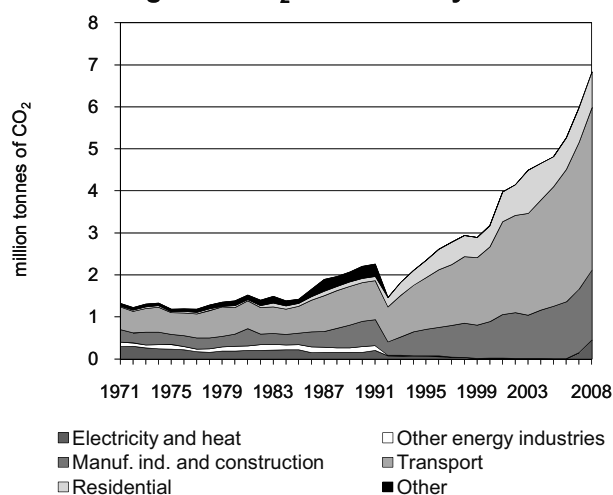
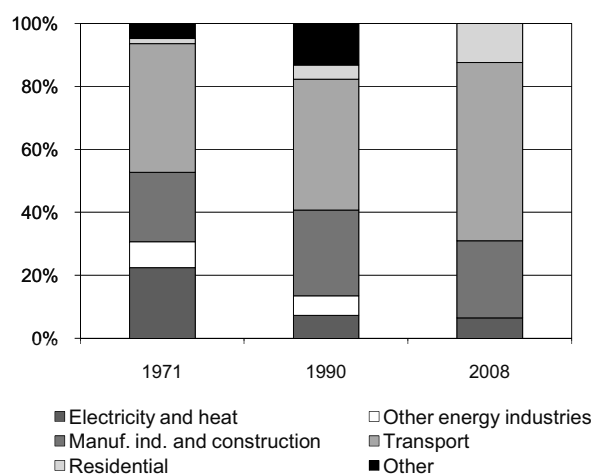
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

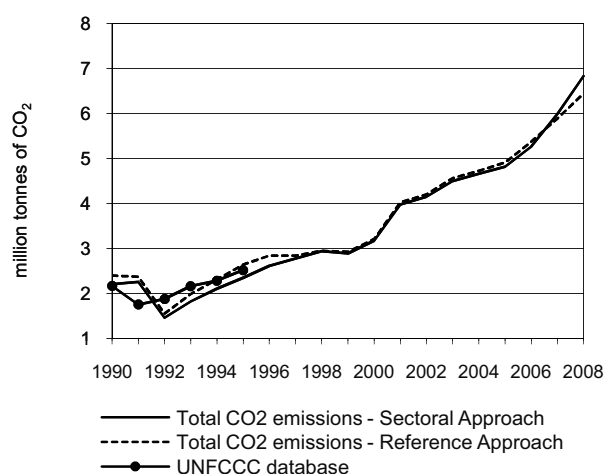


Figure 5. Electricity generation by fuel

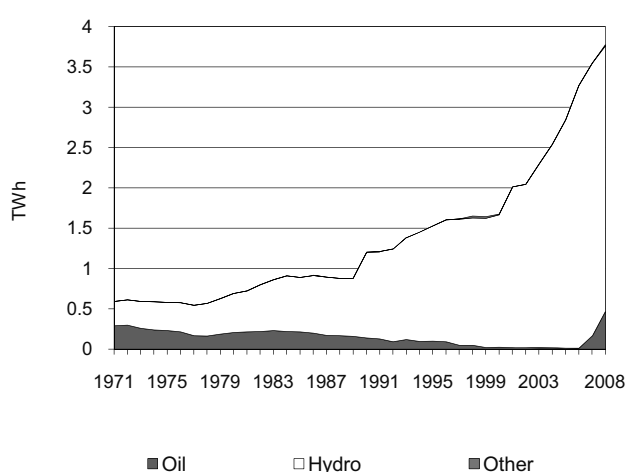
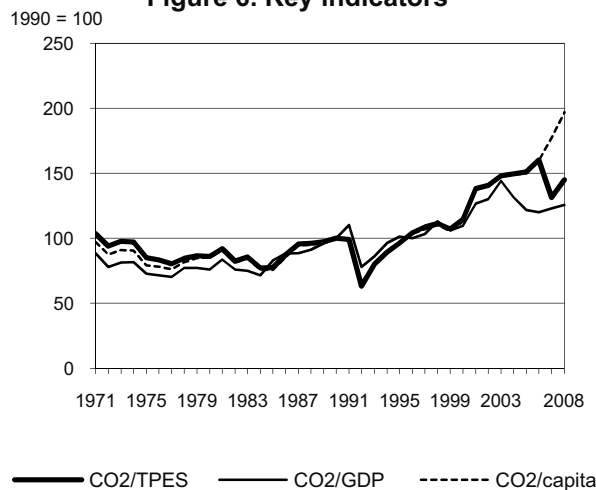


Figure 6. Key indicators



Ethiopia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.21	2.35	3.18	4.82	5.27	5.99	6.83	209.1%
CO ₂ Reference Approach (Mt of CO ₂)	2.40	2.64	3.21	4.91	5.37	5.89	6.44	168.0%
TPES (PJ)	622	687	780	899	927	1 285	1 327	113.3%
TPES (Mtoe)	14.87	16.40	18.64	21.48	22.13	30.70	31.70	113.3%
GDP (billion 2000 USD)	6.23	6.55	8.18	11.17	12.39	13.76	15.32	145.7%
GDP PPP (billion 2000 USD)	41.33	43.43	54.23	74.08	82.12	91.24	101.56	145.8%
Population (millions)	51.45	56.98	65.52	74.66	76.63	78.65	80.71	56.9%
CO ₂ / TPES (t CO ₂ per TJ)	3.6	3.4	4.1	5.4	5.7	4.7	5.1	45.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.35	0.36	0.39	0.43	0.43	0.44	0.45	25.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.05	0.05	0.06	0.07	0.06	0.07	0.07	25.8%
CO ₂ / population (t CO ₂ per capita)	0.04	0.04	0.05	0.06	0.07	0.08	0.08	96.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	6.83	-	-	6.83	209.1%
Main activity producer elec. and heat	-	0.45	-	-	0.45	397.6%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	1.67	-	-	1.67	177.0%
Transport	-	3.87	-	-	3.87	321.2%
<i>of which: road</i>	-	3.87	-	-	3.87	321.2%
Other	-	0.85	-	-	0.85	117.1%
<i>of which: residential</i>	-	0.85	-	-	0.85	762.6%
Reference Approach	-	6.44	-	-	6.44	168.0%
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	-	- 0.39	-	-	- 0.39	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.68	-	-	0.68	27.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	3.87	321.2%	4.0	4.0
Manufacturing industries - oil	1.67	177.0%	1.7	5.7
Residential - oil	0.85	762.6%	0.9	6.6
Main activity prod. elec. and heat - oil	0.45	397.6%	0.5	7.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>6.83</i>	<i>209.1%</i>	<i>7.0</i>	<i>7.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Finland

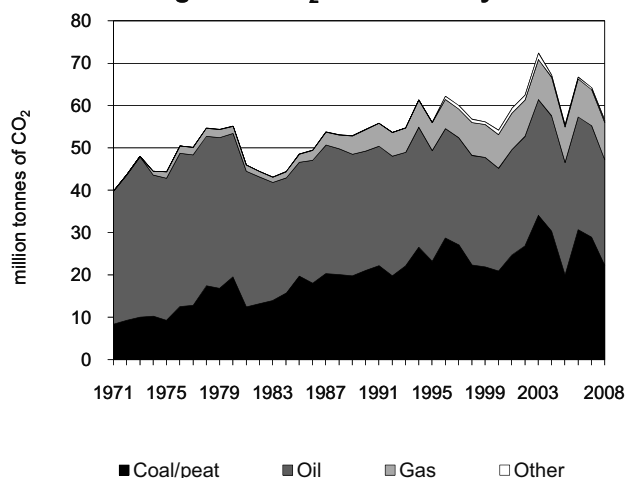
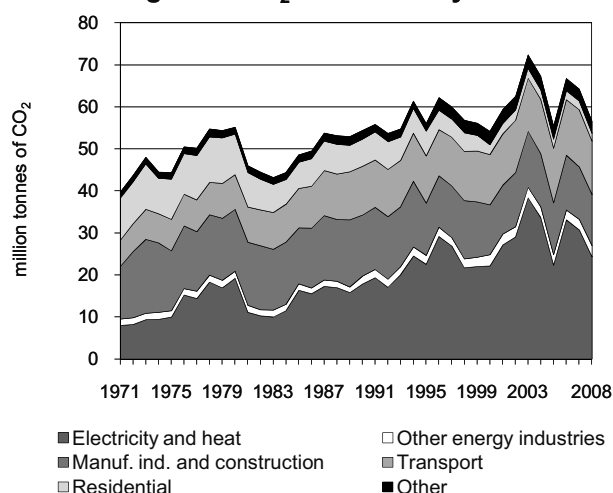
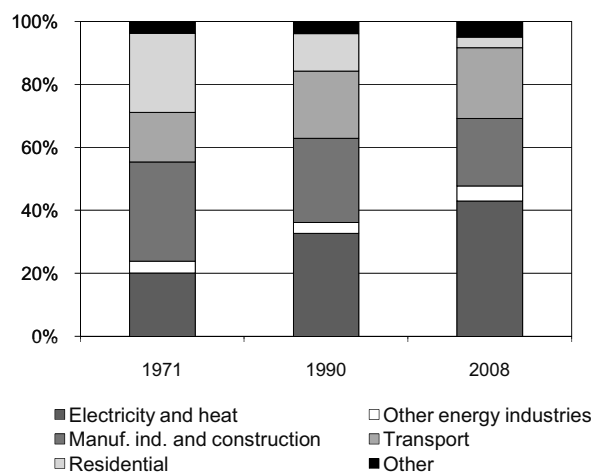
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

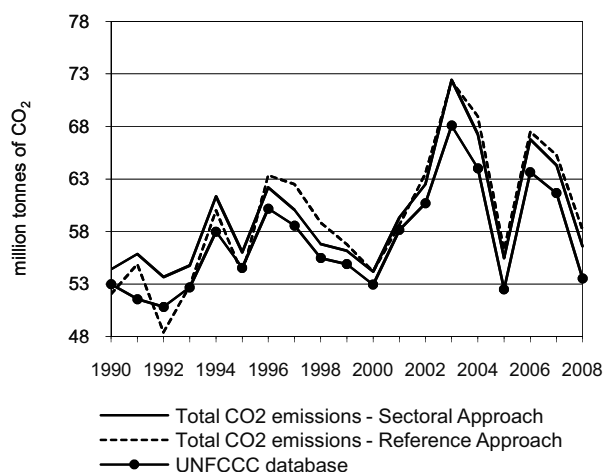


Figure 5. Electricity generation by fuel

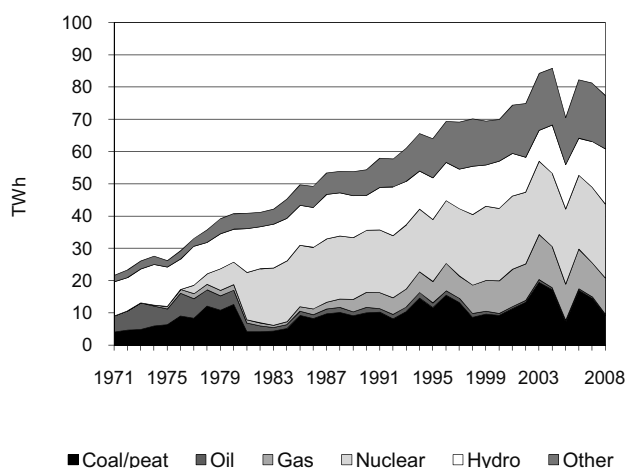
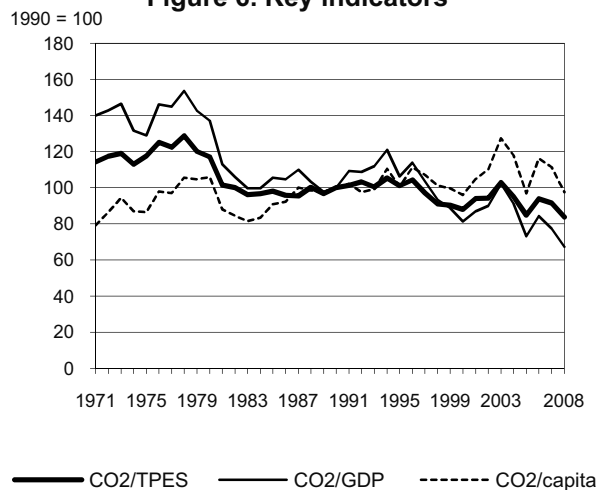


Figure 6. Key indicators



Finland

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	54.40	56.02	54.19	55.45	66.75	64.29	56.58	4.0%
CO ₂ Reference Approach (Mt of CO ₂)	52.06	53.98	54.17	56.27	67.49	65.28	58.16	11.7%
TPES (PJ)	1 188	1 211	1 344	1 427	1 554	1 534	1 476	24.2%
TPES (Mtoe)	28.38	28.92	32.11	34.09	37.12	36.63	35.26	24.2%
GDP (billion 2000 USD)	99.30	96.25	121.72	138.55	144.66	151.81	153.64	54.7%
GDP PPP (billion 2000 USD)	108.33	105.01	132.79	151.15	157.81	165.62	167.61	54.7%
Population (millions)	4.99	5.11	5.18	5.25	5.27	5.29	5.31	6.6%
CO ₂ / TPES (t CO ₂ per TJ)	45.8	46.3	40.3	38.8	42.9	41.9	38.3	-16.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.58	0.45	0.40	0.46	0.42	0.37	-32.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.50	0.53	0.41	0.37	0.42	0.39	0.34	-32.8%
CO ₂ / population (t CO ₂ per capita)	10.91	10.97	10.47	10.57	12.68	12.15	10.65	-2.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	22.27	24.98	8.80	0.53	56.58	4.0%
Main activity producer elec. and heat	15.18	1.03	4.76	0.21	21.18	35.1%
Unallocated autoproducers	2.03	0.14	0.78	0.18	3.13	45.7%
Other energy industries	-	1.80	0.90	-	2.70	43.2%
Manufacturing industries and construction	4.93	4.94	2.16	0.13	12.16	-16.4%
Transport	-	12.66	0.03	-	12.70	9.5%
<i>of which: road</i>	-	11.51	0.01	-	11.52	8.1%
Other	0.13	4.40	0.17	0.01	4.72	-44.9%
<i>of which: residential</i>	0.05	1.76	0.09	-	1.89	-70.7%
Reference Approach	22.00	26.83	8.80	0.53	58.16	11.7%
Diff. due to losses and/or transformation	- 0.29	- 0.36	-	-	- 0.66	
Statistical differences	0.02	2.22	0.00	0.00	2.24	
<i>Memo: international marine bunkers</i>	-	1.26	-	-	1.26	-29.4%
<i>Memo: international aviation bunkers</i>	-	1.72	-	-	1.72	76.6%

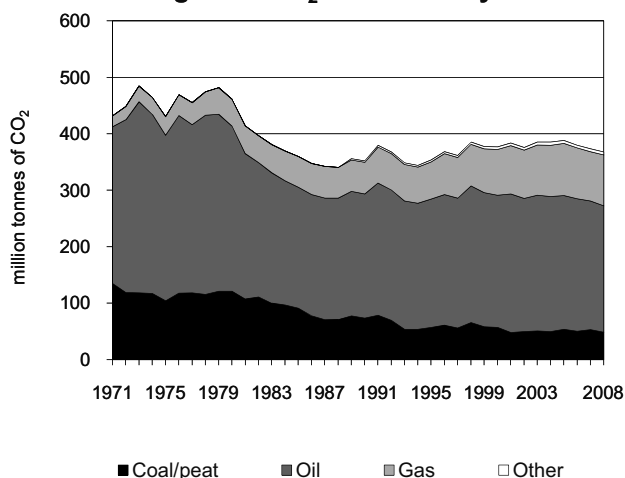
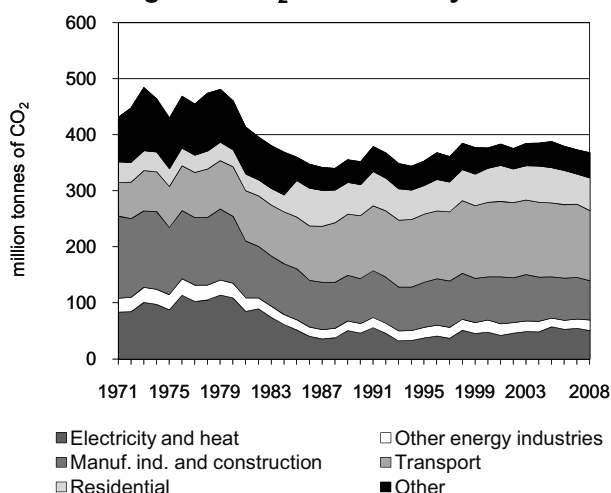
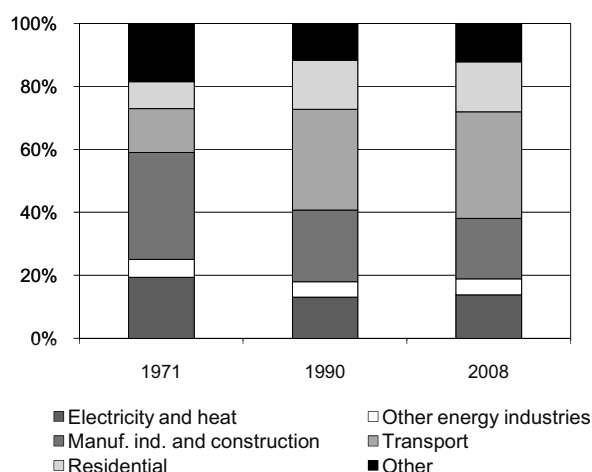
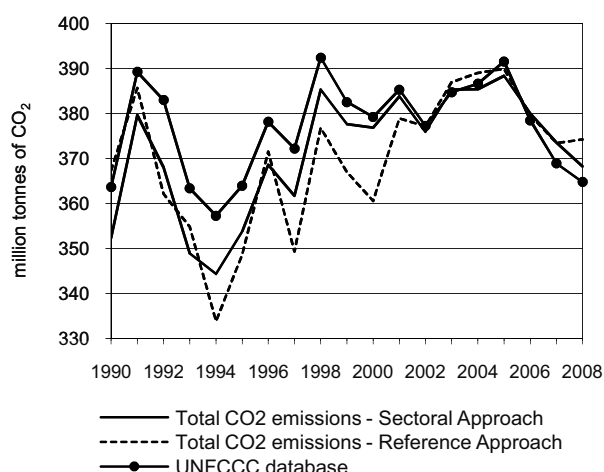
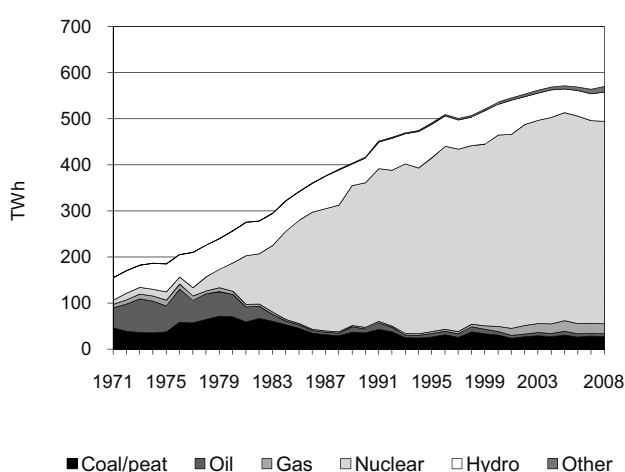
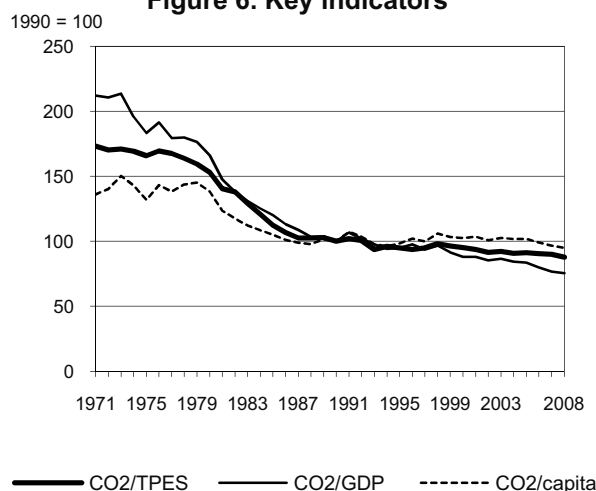
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	15.18	22.1%	20.7	20.7
Road - oil	11.51	8.0%	15.7	36.5
Manufacturing industries - oil	4.94	-3.1%	6.8	43.2
Manufacturing industries - coal/peat	4.93	-32.0%	6.7	50.0
Main activity prod. elec. and heat - gas	4.76	144.6%	6.5	56.5
Non-specified other - oil	2.65	28.3%	3.6	60.1
Manufacturing industries - gas	2.16	-1.1%	2.9	63.0
Unallocated autoproducers - coal/peat	2.03	51.5%	2.8	65.8
Other energy industries - oil	1.80	32.6%	2.5	68.3
Residential - oil	1.76	-72.1%	2.4	70.7
Other transport - oil	1.16	22.3%	1.6	72.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>56.58</i>	<i>4.0%</i>	<i>77.3</i>	<i>77.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

France

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


France

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	352.32	353.85	376.87	388.33	380.06	373.49	368.23	4.5%
CO ₂ Reference Approach (Mt of CO ₂)	367.32	348.67	360.60	389.91	379.62	373.44	374.19	1.9%
TPES (PJ)	9 374	9 909	10 545	11 318	11 176	11 049	11 158	19.0%
TPES (Mtoe)	223.89	236.66	251.87	270.34	266.94	263.89	266.50	19.0%
GDP (billion 2000 USD)	1 091.83	1 156.28	1 327.96	1 442.29	1 474.27	1 508.53	1 515.00	38.8%
GDP PPP (billion 2000 USD)	1 261.93	1 336.43	1 534.86	1 667.00	1 703.95	1 743.55	1 751.04	38.8%
Population (millions)	58.17	59.42	60.73	62.96	63.38	63.76	64.12	10.2%
CO ₂ / TPES (t CO ₂ per TJ)	37.6	35.7	35.7	34.3	34.0	33.8	33.0	-12.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.32	0.31	0.28	0.27	0.26	0.25	0.24	-24.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.28	0.26	0.25	0.23	0.22	0.21	0.21	-24.7%
CO ₂ / population (t CO ₂ per capita)	6.06	5.96	6.21	6.17	6.00	5.86	5.74	-5.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	48.75	223.76	90.43	5.29	368.23	4.5%
Main activity producer elec. and heat	22.70	2.82	5.78	0.56	31.86	29.3%
Unallocated autoproducers	4.16	3.92	7.34	3.51	18.93	-12.0%
Other energy industries	3.26	14.28	1.32	-	18.86	8.1%
Manufacturing industries and construction	17.00	29.13	24.40	-	70.53	-11.9%
Transport	-	124.51	0.19	-	124.70	10.8%
<i>of which: road</i>	-	118.48	0.19	-	118.67	10.2%
Other	1.63	49.11	51.39	1.22	103.35	7.5%
<i>of which: residential</i>	1.36	24.47	32.72	-	58.54	6.6%
Reference Approach	49.84	227.12	91.94	5.29	374.19	1.9%
Diff. due to losses and/or transformation	2.74	- 2.49	1.60	-	1.85	
Statistical differences	- 1.65	5.85	- 0.08	- 0.00	4.12	
<i>Memo: international marine bunkers</i>	-	8.04	-	-	8.04	0.9%
<i>Memo: international aviation bunkers</i>	-	17.58	-	-	17.58	88.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	118.48	10.0%	22.3	22.3
Residential - gas ***	32.72	112.5%	6.2	28.5
Manufacturing industries - oil	29.13	4.9%	5.5	34.0
Non-specified other - oil	24.64	-6.7%	4.6	38.6
Residential - oil	24.47	-25.9%	4.6	43.2
Manufacturing industries - gas	24.40	-0.2%	4.6	47.8
Main activity prod. elec. and heat - coal/peat	22.70	8.6%	4.3	52.1
Non-specified other - gas	18.68	28.1%	3.5	55.6
Manufacturing industries - coal/peat	17.00	-39.0%	3.2	58.9
Other energy industries - oil	14.28	-5.9%	2.7	61.5
Unallocated autoproducers - gas ***	7.34	701.7%	1.4	62.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>368.23</i>	<i>4.5%</i>	<i>69.4</i>	<i>69.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

*** The high growth in gas is due to changes in methodology in 2000.

Gabon

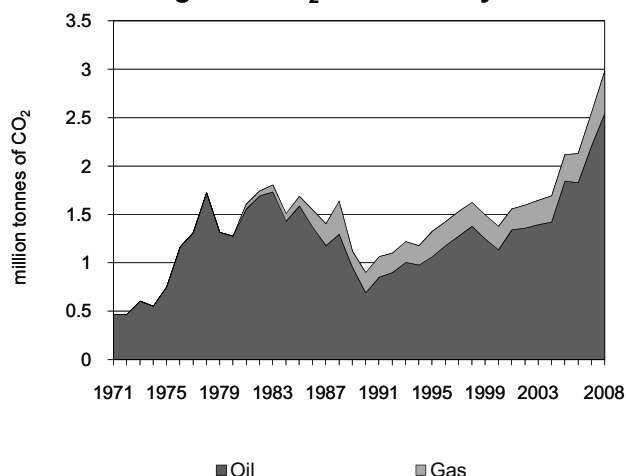
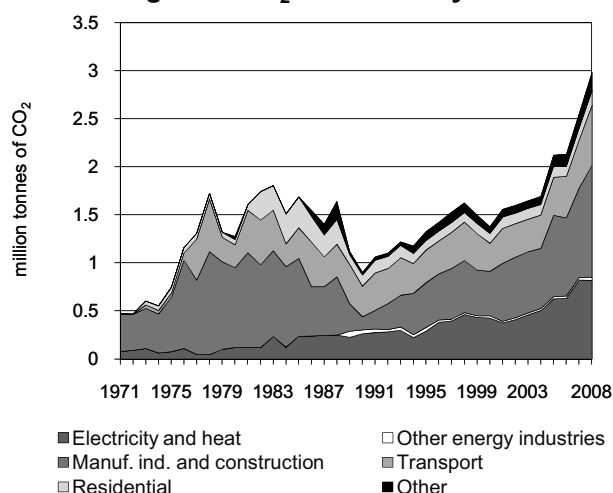
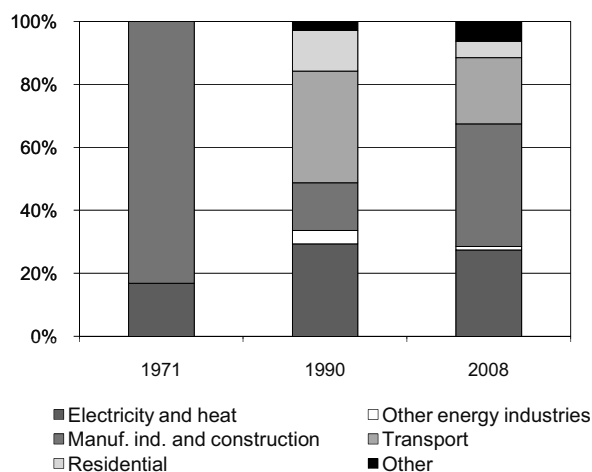
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

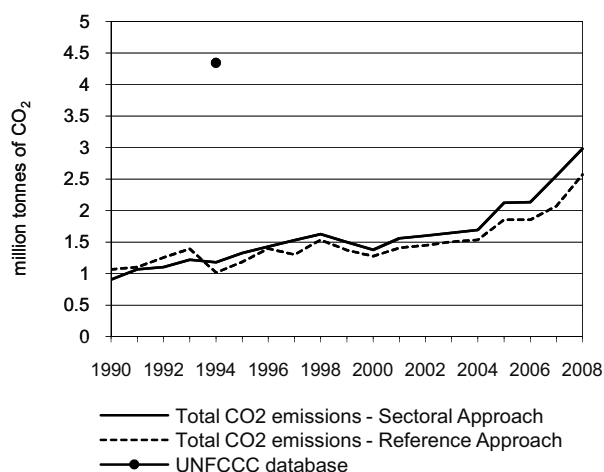


Figure 5. Electricity generation by fuel

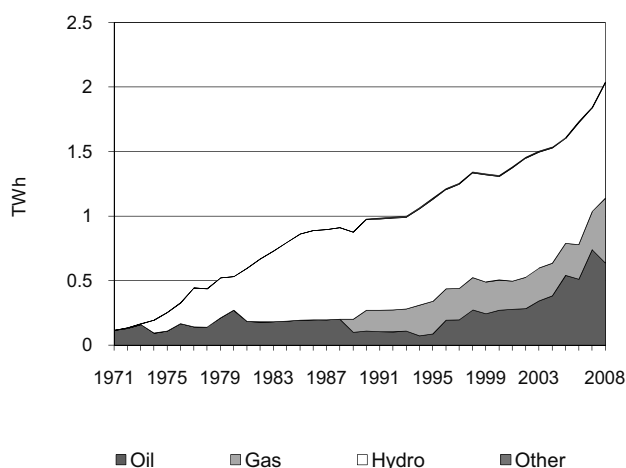
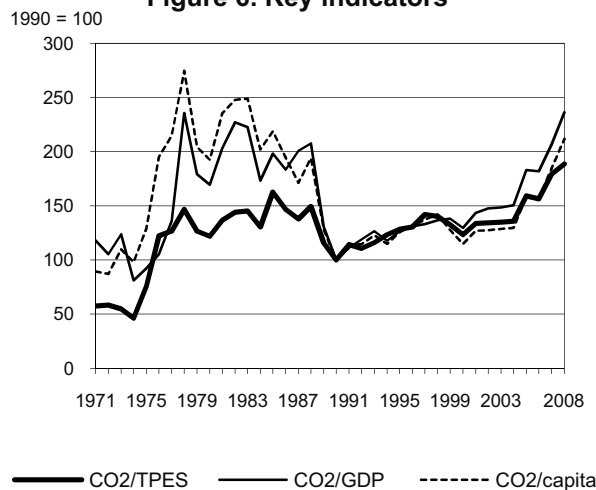


Figure 6. Key indicators



Gabon

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	0.90	1.33	1.38	2.12	2.13	2.56	2.98	230.8%
CO ₂ Reference Approach (Mt of CO ₂)	1.06	1.18	1.28	1.85	1.85	2.07	2.57	141.3%
TPES (PJ)	49	57	61	73	75	78	87	75.5%
TPES (Mtoe)	1.18	1.35	1.46	1.75	1.79	1.87	2.07	75.5%
GDP (billion 2000 USD)	4.30	5.00	5.07	5.52	5.59	5.90	6.02	40.1%
GDP PPP (billion 2000 USD)	6.31	7.34	7.44	8.11	8.20	8.66	8.84	40.1%
Population (millions)	0.93	1.08	1.23	1.37	1.40	1.42	1.45	56.4%
CO ₂ / TPES (t CO ₂ per TJ)	18.2	23.4	22.5	29.0	28.5	32.6	34.4	88.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.21	0.27	0.27	0.38	0.38	0.43	0.50	136.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.14	0.18	0.19	0.26	0.26	0.30	0.34	136.2%
CO ₂ / population (t CO ₂ per capita)	0.97	1.22	1.12	1.55	1.53	1.80	2.06	111.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	2.54	0.44	-	2.98	230.8%
Main activity producer elec. and heat	-	0.24	0.24	-	0.48	132.5%
Unallocated autoproducers	-	0.18	0.15	-	0.34	482.9%
Other energy industries	-	-	0.03	-	0.03	-12.1%
Manufacturing industries and construction	-	1.16	0.00	-	1.16	752.3%
Transport	-	0.63	-	-	0.63	96.1%
<i>of which: road</i>	-	0.63	-	-	0.63	96.1%
Other	-	0.34	-	-	0.34	140.1%
<i>of which: residential</i>	-	0.15	-	-	0.15	31.9%
Reference Approach	-	2.18	0.39	-	2.57	141.3%
Diff. due to losses and/or transformation	-	0.10	-	-	0.10	
Statistical differences	-	- 0.46	- 0.05	-	- 0.51	
<i>Memo: international marine bunkers</i>	-	0.60	-	-	0.60	659.8%
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	-0.2%

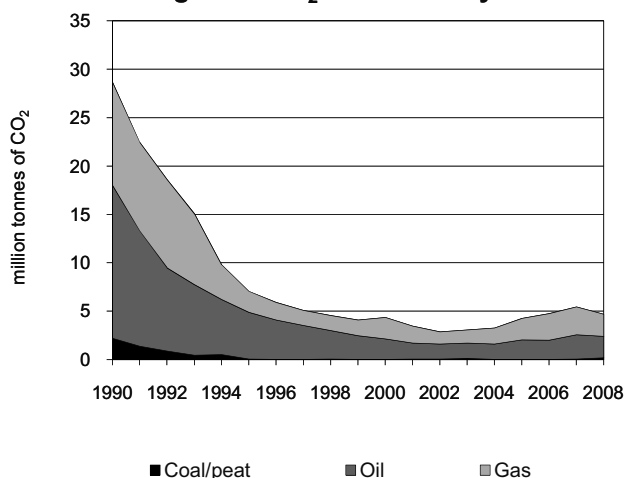
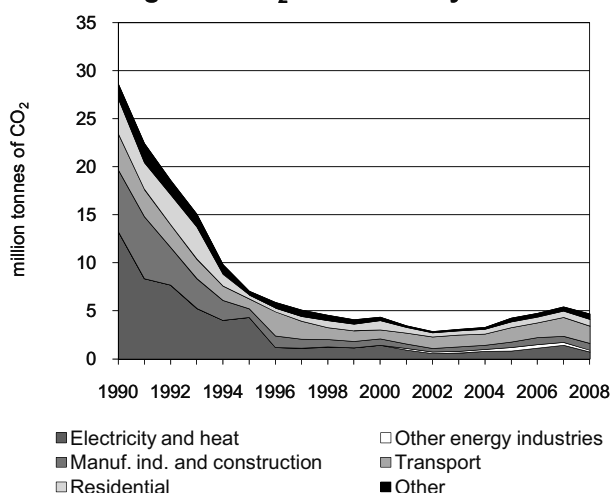
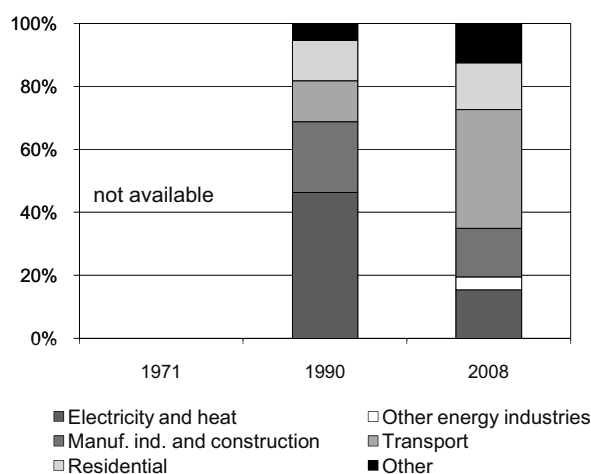
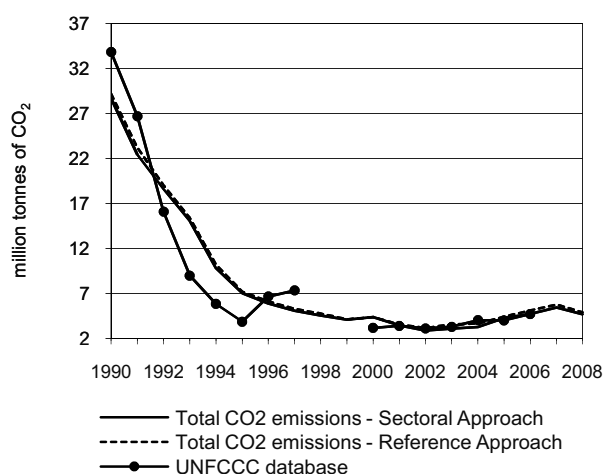
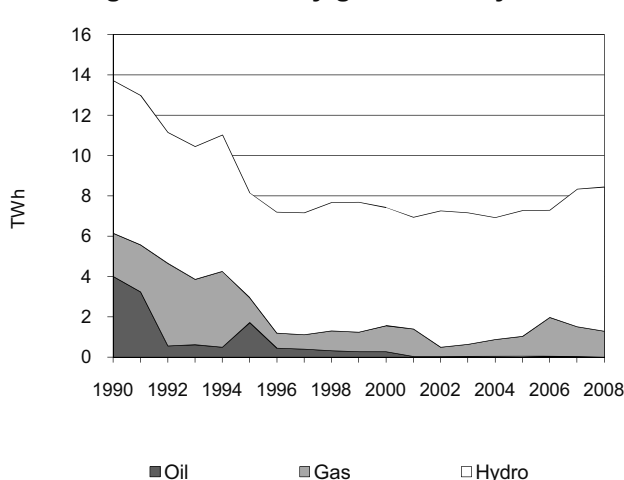
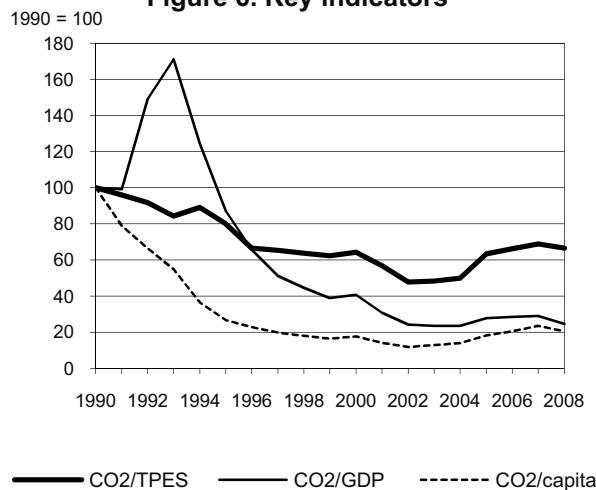
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - oil	1.16	767.3%	7.1	7.1
Road - oil	0.63	96.1%	3.8	10.9
Main activity prod. elec. and heat - gas	0.24	97.2%	1.5	12.4
Main activity prod. elec. and heat - oil	0.24	185.3%	1.4	13.8
Non-specified other - oil	0.19	637.5%	1.1	15.0
Unallocated autoproducers - oil	0.18	+	1.1	16.1
Unallocated autoproducers - gas	0.15	265.7%	0.9	17.0
Residential - oil	0.15	31.9%	0.9	18.0
Other energy industries - gas	0.03	-12.1%	0.2	18.2
Manufacturing industries - gas	0.00	63.9%	0.0	18.2
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.98</i>	<i>230.8%</i>	<i>18.2</i>	<i>18.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Georgia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Georgia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	28.69	7.06	4.37	4.26	4.75	5.45	4.71	-83.6%
CO ₂ Reference Approach (Mt of CO ₂)	29.17	7.18	4.39	4.41	5.12	5.77	4.90	-83.2%
TPES (PJ)	507	156	120	119	127	140	125	-75.3%
TPES (Mtoe)	12.11	3.72	2.87	2.84	3.03	3.34	2.99	-75.3%
GDP (billion 2000 USD)	8.15	2.30	3.06	4.36	4.76	5.36	5.46	-33.0%
GDP PPP (billion 2000 USD)	25.15	7.11	9.43	13.44	14.70	16.52	16.85	-33.0%
Population (millions)	5.46	5.03	4.72	4.47	4.43	4.40	4.36	-20.1%
CO ₂ / TPES (t CO ₂ per TJ)	56.6	45.3	36.4	35.9	37.5	39.0	37.6	-33.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	3.52	3.07	1.43	0.98	1.00	1.02	0.86	-75.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.14	0.99	0.46	0.32	0.32	0.33	0.28	-75.5%
CO ₂ / population (t CO ₂ per capita)	5.25	1.40	0.93	0.95	1.07	1.24	1.08	-79.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.21	2.22	2.28	-	4.71	-83.6%
Main activity producer elec. and heat	-	-	0.73	-	0.73	-94.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	0.19	-	0.19	x
Manufacturing industries and construction	0.08	0.12	0.53	-	0.73	-88.7%
Transport	0.04	1.67	0.07	-	1.77	-52.7%
<i>of which: road</i>	-	1.67	0.04	-	1.70	-50.8%
Other	0.09	0.43	0.77	-	1.29	-75.3%
<i>of which: residential</i>	0.02	0.22	0.45	-	0.70	-81.0%
Reference Approach	0.20	2.23	2.47	-	4.90	-83.2%
Diff. due to losses and/or transformation	-	0.02	0.19	-	0.21	
Statistical differences	- 0.00	- 0.01	0.00	-	- 0.01	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.12	-	-	0.12	-79.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	1.67	-51.8%	14.0	14.0
Main activity prod. elec. and heat - gas	0.73	-84.1%	6.1	20.0
Manufacturing industries - gas	0.53	-82.7%	4.5	24.5
Residential - gas	0.45	-82.8%	3.8	28.3
Non-specified other - gas	0.32	6.8%	2.7	30.9
Residential - oil	0.22	-77.1%	1.9	32.8
Non-specified other - oil	0.21	-81.3%	1.8	34.6
Other energy industries - gas	0.19	x	1.6	36.1
Manufacturing industries - oil	0.12	-94.2%	1.0	37.1
Manufacturing industries - coal/peat	0.08	-94.0%	0.6	37.8
Non-specified other sectors - coal/peat	0.06	-51.4%	0.5	38.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.71</i>	<i>-83.6%</i>	<i>39.4</i>	<i>39.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Germany

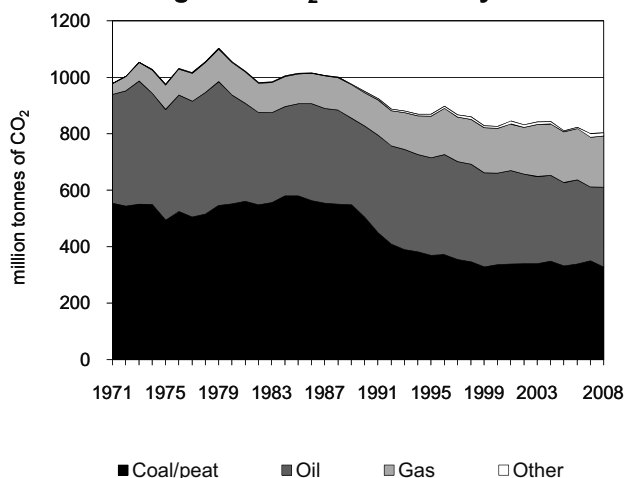
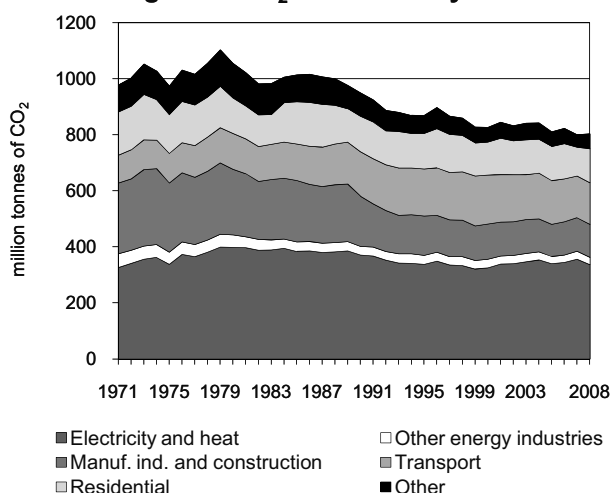
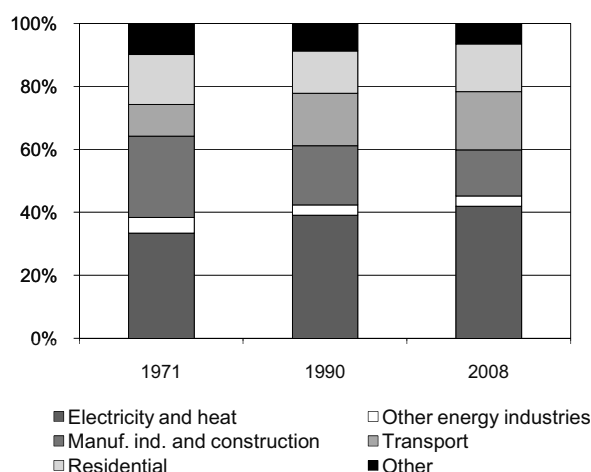
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

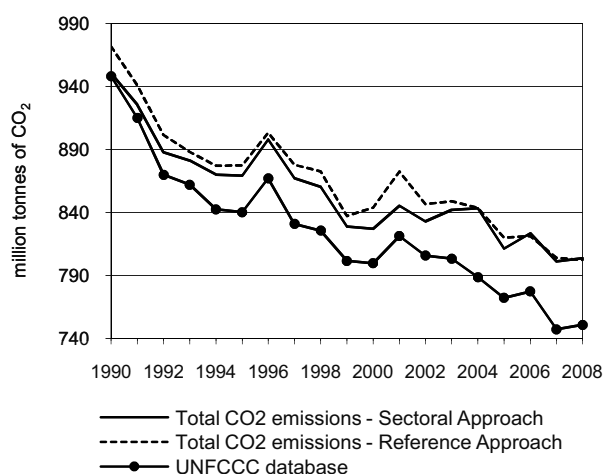


Figure 5. Electricity generation by fuel

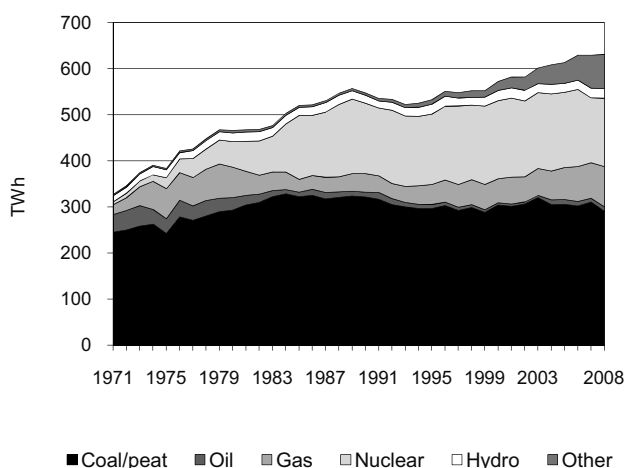
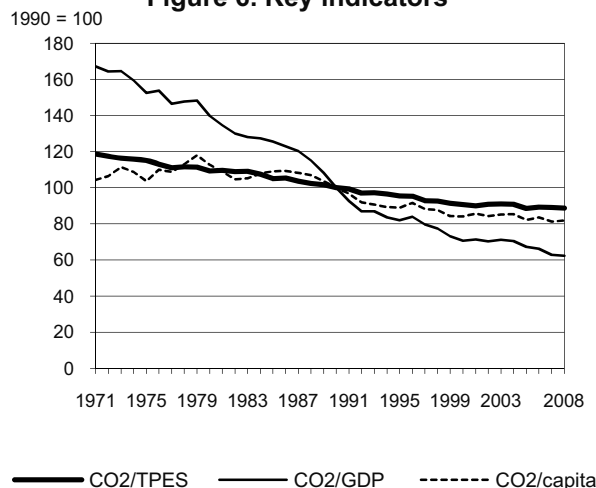


Figure 6. Key indicators



Germany

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	950.42	869.33	827.14	811.27	823.46	801.10	803.86	-15.4%
CO ₂ Reference Approach (Mt of CO ₂)	971.70	877.47	843.88	820.05	821.34	804.09	802.56	-17.4%
TPES (PJ)	14 713	14 112	14 122	14 180	14 287	13 938	14 038	-4.6%
TPES (Mtoe)	351.40	337.05	337.29	338.69	341.24	332.90	335.28	-4.6%
GDP (billion 2000 USD)	1 543.20	1 720.46	1 900.22	1 957.42	2 019.37	2 069.15	2 095.18	35.8%
GDP PPP (billion 2000 USD)	1 732.21	1 931.18	2 132.96	2 197.16	2 266.70	2 322.58	2 351.80	35.8%
Population (millions)	79.36	81.66	82.19	82.46	82.37	82.26	82.12	3.5%
CO ₂ / TPES (t CO ₂ per TJ)	64.6	61.6	58.6	57.2	57.6	57.5	57.3	-11.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.62	0.51	0.44	0.41	0.41	0.39	0.38	-37.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.55	0.45	0.39	0.37	0.36	0.34	0.34	-37.7%
CO ₂ / population (t CO ₂ per capita)	11.98	10.65	10.06	9.84	10.00	9.74	9.79	-18.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	328.27	283.28	180.80	11.51	803.86	-15.4%
Main activity producer elec. and heat	250.16	2.65	36.41	9.00	298.23	-3.6%
Unallocated autoproducers	27.57	3.81	7.35	0.32	39.05	-37.3%
Other energy industries	5.61	19.22	1.15	0.02	26.00	-16.5%
Manufacturing industries and construction	40.03	32.56	43.38	2.17	118.14	-34.1%
Transport	-	148.36	-	-	148.36	-6.3%
<i>of which: road</i>	-	139.86	-	-	139.86	-5.9%
Other	4.90	76.68	92.51	-	174.08	-17.2%
<i>of which: residential</i>	3.81	49.82	67.80	-	121.43	-4.5%
Reference Approach	323.89	289.78	177.37	11.51	802.56	-17.4%
Diff. due to losses and/or transformation	- 2.42	8.08	0.11	-	5.76	
Statistical differences	- 1.96	- 1.57	- 3.53	0.00	- 7.06	
<i>Memo: international marine bunkers</i>	-	9.36	-	-	9.36	20.1%
<i>Memo: international aviation bunkers</i>	-	21.73	-	-	21.73	72.8%

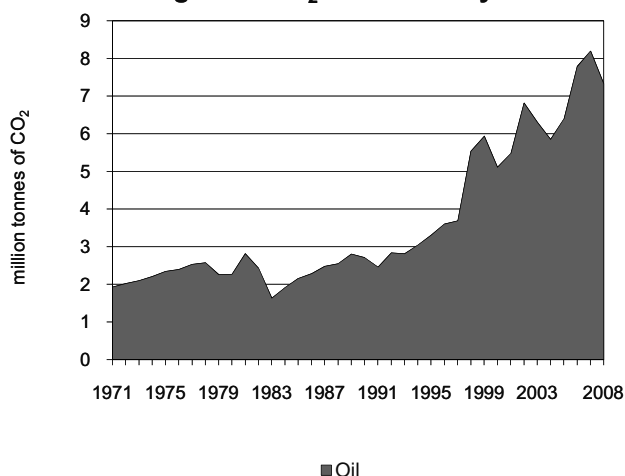
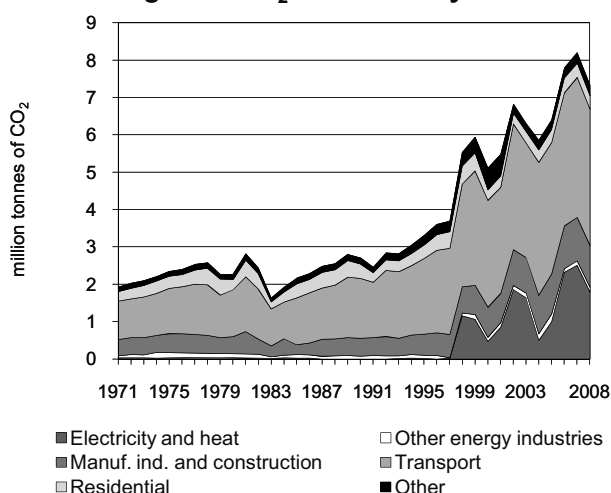
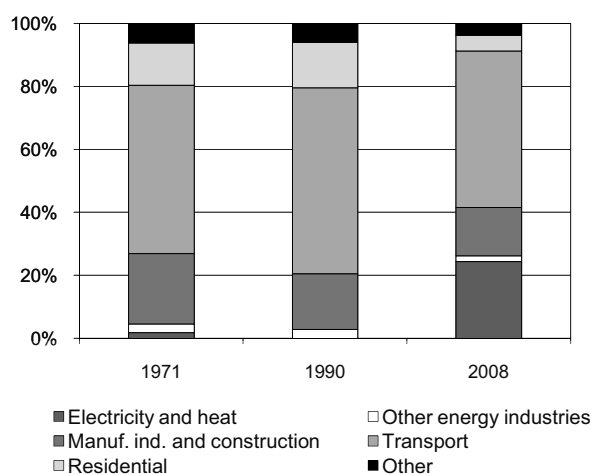
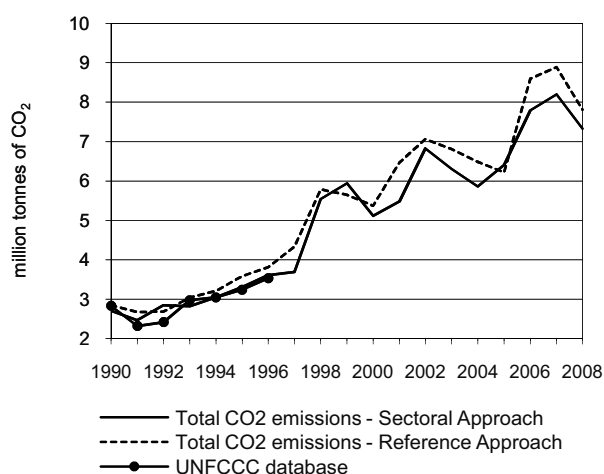
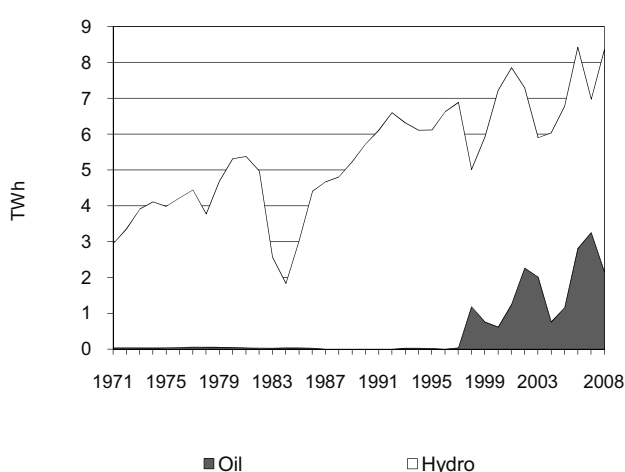
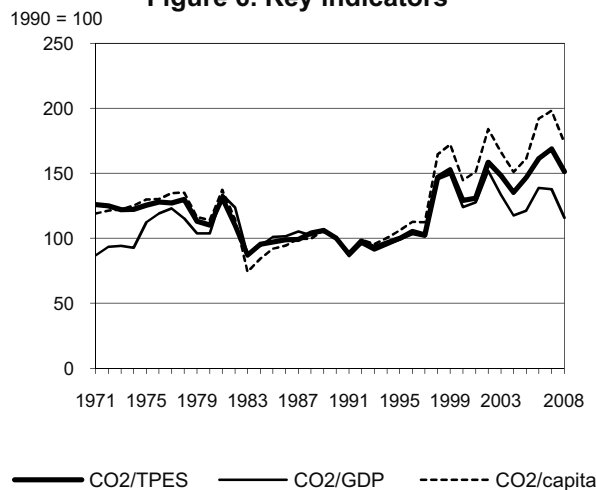
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	250.16	-10.8%	24.7	24.7
Road - oil	139.86	-5.9%	13.8	38.6
Residential - gas	67.80	116.4%	6.7	45.3
Residential - oil	49.82	-9.9%	4.9	50.2
Manufacturing industries - gas	43.38	0.0%	4.3	54.5
Manufacturing industries - coal/peat	40.03	-57.4%	4.0	58.5
Main activity prod. elec. and heat - gas	36.41	97.2%	3.6	62.1
Manufacturing industries - oil	32.56	-22.5%	3.2	65.3
Unallocated autoproducers - coal/peat	27.57	-46.4%	2.7	68.0
Non-specified other - oil	26.86	-32.1%	2.7	70.7
Non-specified other - gas	24.71	66.5%	2.4	73.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>803.86</i>	<i>-15.4%</i>	<i>79.5</i>	<i>79.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ghana

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Ghana

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.71	3.31	5.11	6.40	7.79	8.20	7.33	170.6%
CO ₂ Reference Approach (Mt of CO ₂)	2.85	3.59	5.37	6.22	8.60	8.89	7.81	174.2%
TPES (PJ)	222	271	324	357	395	398	396	78.8%
TPES (Mtoe)	5.29	6.47	7.74	8.52	9.42	9.49	9.46	78.8%
GDP (billion 2000 USD)	3.27	4.03	4.98	6.36	6.77	7.18	7.63	133.5%
GDP PPP (billion 2000 USD)	25.07	30.91	38.19	48.83	51.96	55.13	58.54	133.6%
Population (millions)	14.97	17.25	19.53	21.92	22.39	22.87	23.35	56.0%
CO ₂ / TPES (t CO ₂ per TJ)	12.2	12.2	15.8	18.0	19.7	20.6	18.5	51.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.83	0.82	1.03	1.01	1.15	1.14	0.96	15.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.11	0.13	0.13	0.15	0.15	0.13	15.9%
CO ₂ / population (t CO ₂ per capita)	0.18	0.19	0.26	0.29	0.35	0.36	0.31	73.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	7.33	-	-	7.33	170.6%
Main activity producer elec. and heat	-	1.79	-	-	1.79	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	0.13	-	-	0.13	75.0%
Manufacturing industries and construction	-	1.12	-	-	1.12	133.9%
Transport	-	3.65	-	-	3.65	127.9%
<i>of which: road</i>	-	3.37	-	-	3.37	121.9%
Other	-	0.64	-	-	0.64	15.5%
<i>of which: residential</i>	-	0.36	-	-	0.36	-7.7%
Reference Approach	-	7.81	-	-	7.81	174.2%
Diff. due to losses and/or transformation	-	0.39	-	-	0.39	
Statistical differences	-	0.08	-	-	0.08	
<i>Memo: international marine bunkers</i>	-	0.18	-	-	0.18	..
<i>Memo: international aviation bunkers</i>	-	0.39	-	-	0.39	182.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	3.37	121.9%	14.4	14.4
Main activity prod. elec. and heat - oil	1.79	x	7.7	22.1
Manufacturing industries - oil	1.12	133.9%	4.8	26.9
Residential - oil	0.36	-7.7%	1.6	28.5
Other transport - oil	0.28	238.5%	1.2	29.7
Non-specified other - oil	0.28	71.7%	1.2	30.9
Other energy industries - oil	0.13	75.0%	0.6	31.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.33</i>	<i>170.6%</i>	<i>31.5</i>	<i>31.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Gibraltar

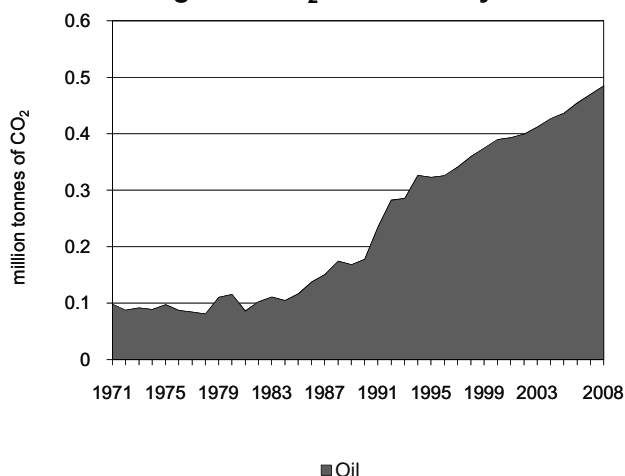
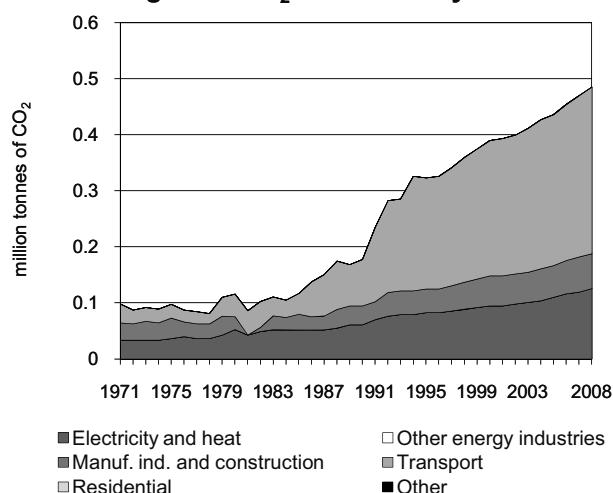
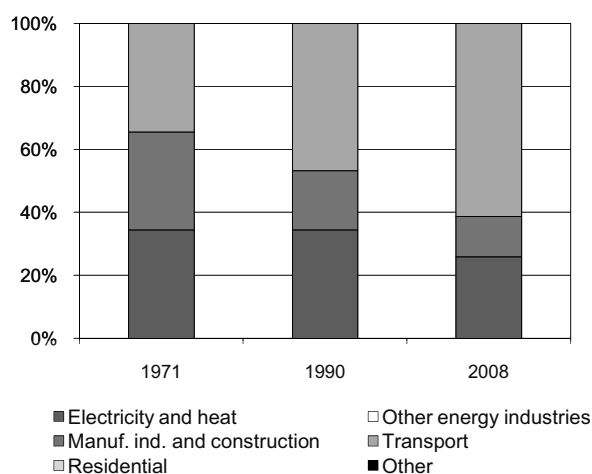
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

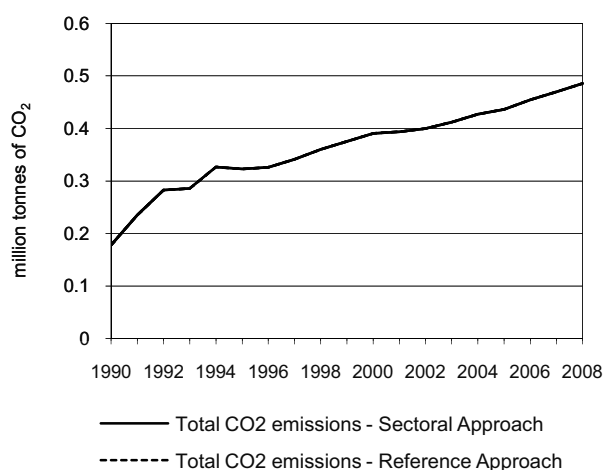


Figure 5. Electricity generation by fuel

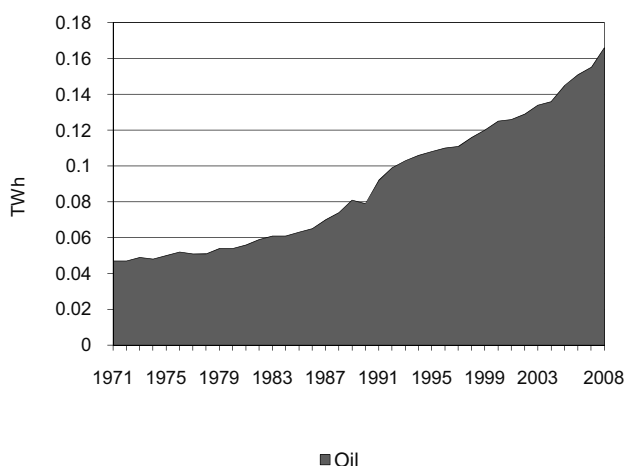
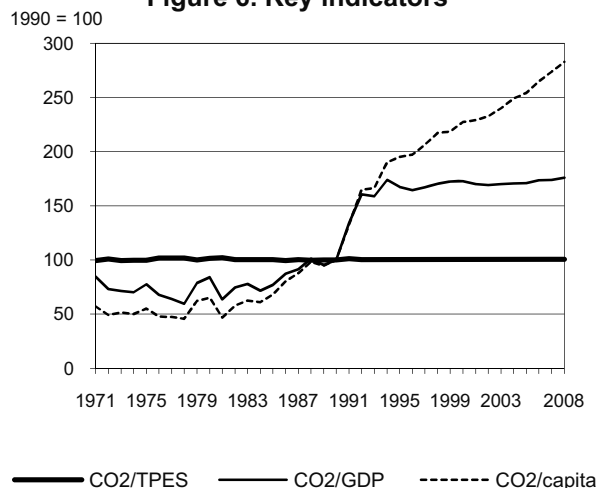


Figure 6. Key indicators



Gibraltar

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	0.18	0.32	0.39	0.44	0.45	0.47	0.49	172.9%
CO ₂ Reference Approach (Mt of CO ₂)	0.18	0.32	0.39	0.44	0.45	0.47	0.49	172.9%
TPES (PJ)	2	4	5	6	6	6	7	171.4%
TPES (Mtoe)	0.06	0.11	0.13	0.14	0.15	0.15	0.16	171.5%
GDP (billion 2000 USD)	0.58	0.63	0.74	0.83	0.85	0.88	0.90	55.3%
GDP PPP (billion 2000 USD)	0.61	0.66	0.77	0.87	0.89	0.92	0.94	55.2%
Population (millions)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-3.4%
CO ₂ / TPES (t CO ₂ per TJ)	72.6	72.9	72.9	73.0	73.0	73.0	73.0	0.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.31	0.51	0.53	0.53	0.53	0.53	0.54	75.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.29	0.49	0.51	0.50	0.51	0.51	0.52	75.9%
CO ₂ / population (t CO ₂ per capita)	6.13	11.97	13.94	15.59	16.24	16.79	17.34	182.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	0.49	-	-	0.49	172.9%
Main activity producer elec. and heat	-	0.13	-	-	0.13	105.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	-	0.06	-	-	0.06	86.7%
Transport	-	0.30	-	-	0.30	257.8%
<i>of which: road</i>	-	0.30	-	-	0.30	257.8%
Other	-	-	-	-	-	-
<i>of which: residential</i>	-	-	-	-	-	-
Reference Approach	-	0.49	-	-	0.49	172.9%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	3.92	-	-	3.92	185.2%
<i>Memo: international aviation bunkers</i>	-	0.01	-	-	0.01	-42.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	0.30	257.8%	59.2	59.2
Main activity prod. elec. and heat - oil	0.13	105.0%	25.0	84.2
Manufacturing industries - oil	0.06	86.7%	12.4	96.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>0.49</i>	<i>172.9%</i>	<i>96.6</i>	<i>96.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Greece

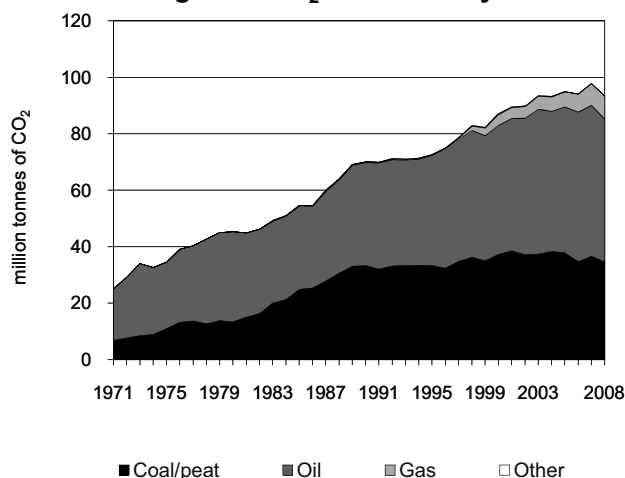
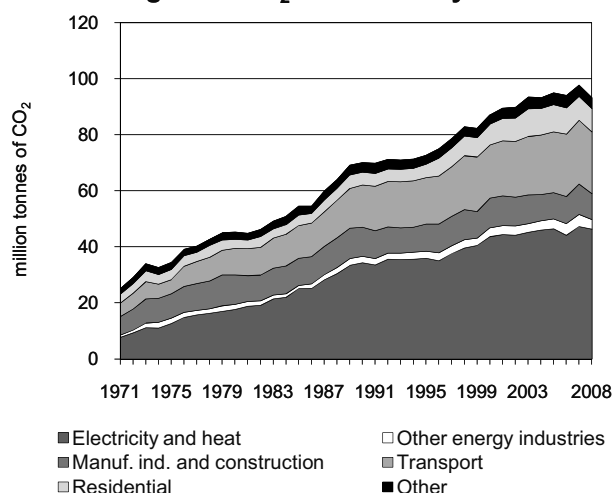
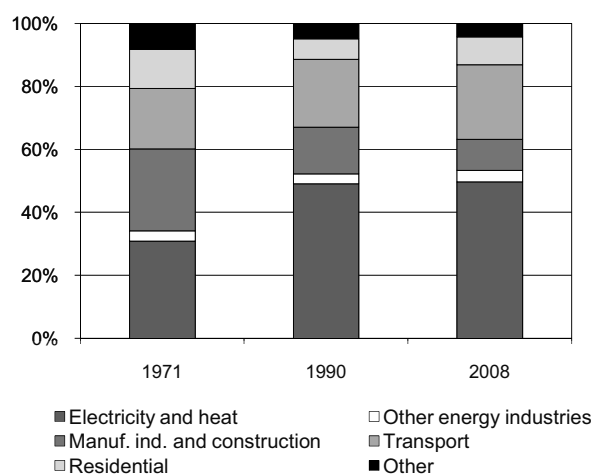
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

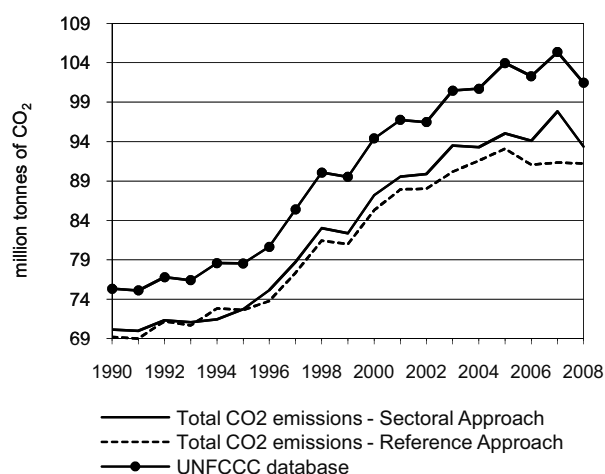


Figure 5. Electricity generation by fuel

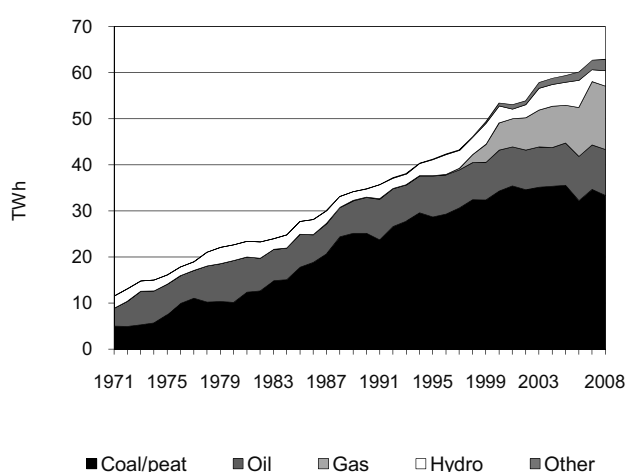
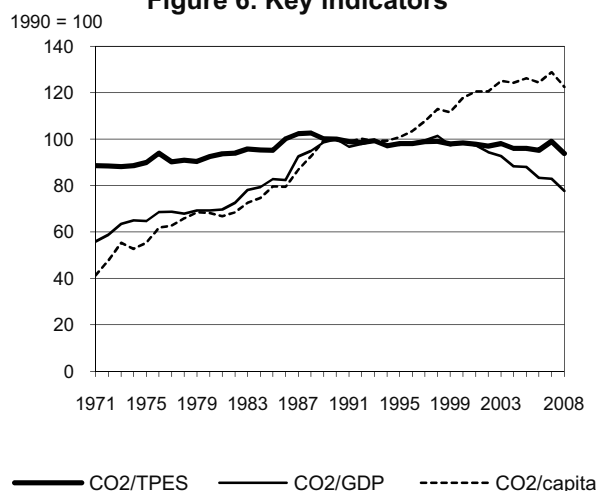


Figure 6. Key indicators



Greece

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	70.13	72.74	87.19	95.04	94.10	97.84	93.39	33.2%
CO ₂ Reference Approach (Mt of CO ₂)	69.23	72.62	85.28	93.10	91.07	91.34	91.22	31.8%
TPES (PJ)	898	949	1 134	1 266	1 265	1 265	1 274	41.9%
TPES (Mtoe)	21.44	22.68	27.09	30.25	30.22	30.22	30.42	41.9%
GDP (billion 2000 USD)	100.82	107.27	127.09	155.23	162.25	169.50	172.92	71.5%
GDP PPP (billion 2000 USD)	159.48	169.67	201.02	245.53	256.63	268.11	273.51	71.5%
Population (millions)	10.34	10.63	10.92	11.10	11.15	11.19	11.24	8.7%
CO ₂ / TPES (t CO ₂ per TJ)	78.1	76.6	76.9	75.0	74.4	77.3	73.3	-6.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.68	0.69	0.61	0.58	0.58	0.54	-22.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.44	0.43	0.43	0.39	0.37	0.36	0.34	-22.4%
CO ₂ / population (t CO ₂ per capita)	6.78	6.84	7.99	8.56	8.44	8.74	8.31	22.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	34.56	50.72	8.10	0.02	93.39	33.2%
Main activity producer elec. and heat	33.00	6.70	5.66	-	45.36	33.6%
Unallocated autoproducers	-	0.82	0.17	0.02	1.01	108.6%
Other energy industries	-	3.41	0.07	-	3.49	56.5%
Manufacturing industries and construction	1.53	6.30	1.36	-	9.19	-11.5%
Transport	-	22.01	0.05	-	22.06	46.2%
<i>of which: road</i>	-	18.93	0.03	-	18.96	64.9%
Other	0.02	11.47	0.79	-	12.28	53.6%
<i>of which: residential</i>	0.02	7.82	0.48	-	8.33	81.5%
Reference Approach	34.46	48.69	8.05	0.02	91.22	31.8%
Diff. due to losses and/or transformation	- 0.00	- 1.28	0.01	-	- 1.26	
Statistical differences	- 0.10	- 0.75	- 0.06	-	- 0.91	
<i>Memo: international marine bunkers</i>	-	9.72	-	-	9.72	21.9%
<i>Memo: international aviation bunkers</i>	-	2.94	-	-	2.94	25.5%

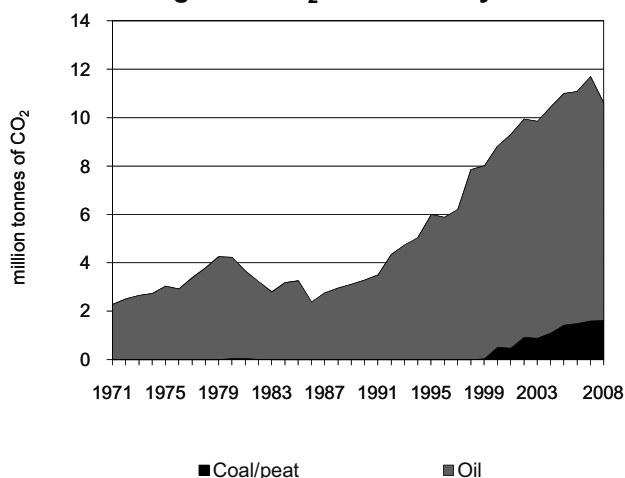
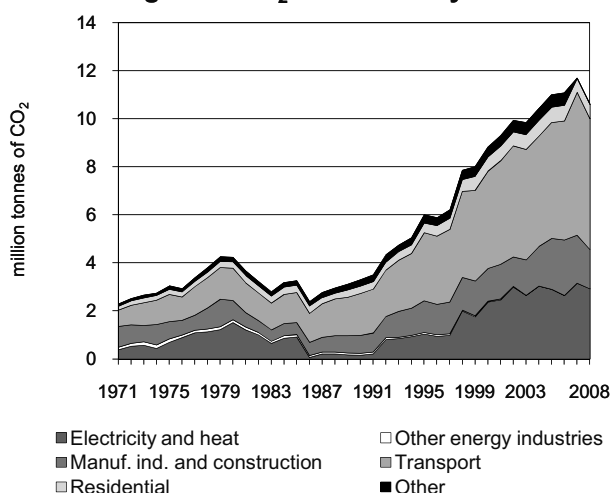
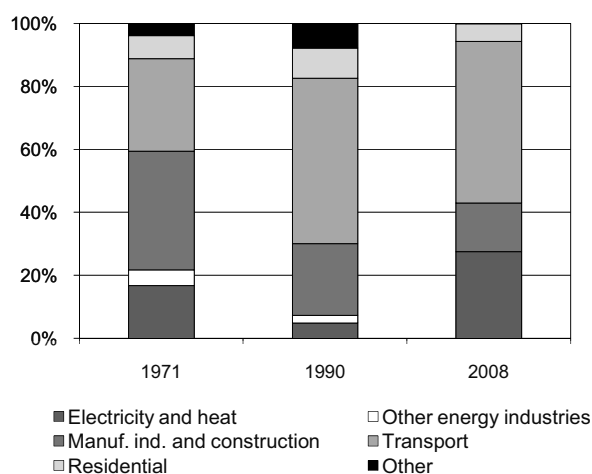
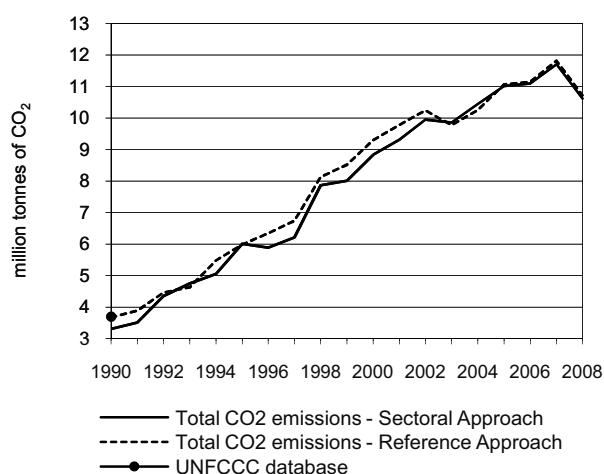
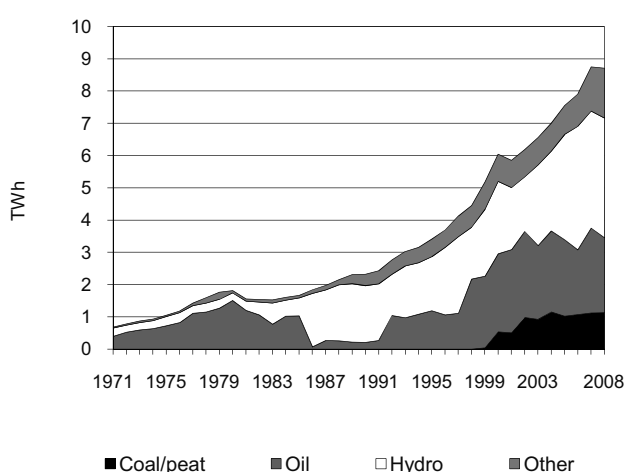
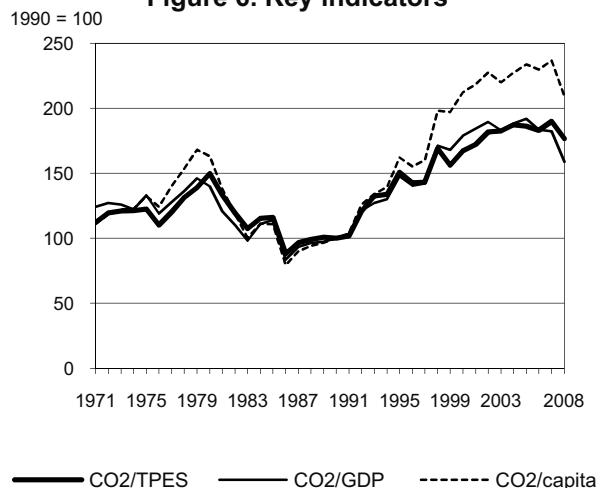
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	33.00	15.3%	27.8	27.8
Road - oil	18.93	64.6%	15.9	43.7
Residential - oil	7.82	73.7%	6.6	50.3
Main activity prod. elec. and heat - oil	6.70	25.6%	5.6	55.9
Manufacturing industries - oil	6.30	13.0%	5.3	61.2
Main activity prod. elec. and heat - gas	5.66	x	4.8	66.0
Non-specified other - oil	3.65	8.2%	3.1	69.1
Other energy industries - oil	3.41	57.0%	2.9	71.9
Other transport - oil	3.08	-14.0%	2.6	74.5
Manufacturing industries - coal/peat	1.53	-67.1%	1.3	75.8
Manufacturing industries - gas	1.36	796.7%	1.1	77.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>93.39</i>	<i>33.2%</i>	<i>78.6</i>	<i>78.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Guatemala

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Guatemala

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3.30	6.01	8.83	11.01	11.09	11.70	10.61	221.6%
CO ₂ Reference Approach (Mt of CO ₂)	3.67	5.99	9.30	11.07	11.15	11.82	10.72	192.1%
TPES (PJ)	186	224	297	332	341	347	338	82.0%
TPES (Mtoe)	4.43	5.35	7.09	7.94	8.14	8.28	8.07	82.0%
GDP (billion 2000 USD)	12.89	15.89	19.29	22.39	23.60	25.08	26.09	102.4%
GDP PPP (billion 2000 USD)	30.20	37.24	45.21	52.47	55.30	58.76	61.13	102.4%
Population (millions)	8.91	10.00	11.23	12.71	13.03	13.35	13.68	53.5%
CO ₂ / TPES (t CO ₂ per TJ)	17.8	26.8	29.7	33.1	32.5	33.7	31.4	76.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.38	0.46	0.49	0.47	0.47	0.41	58.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.16	0.20	0.21	0.20	0.20	0.17	58.8%
CO ₂ / population (t CO ₂ per capita)	0.37	0.60	0.79	0.87	0.85	0.88	0.78	109.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1.63	8.99	-	-	10.61	221.6%
Main activity producer elec. and heat	1.08	1.68	-	-	2.76	+
Unallocated autoproducers	-	0.17	-	-	0.17	x
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.55	1.09	-	-	1.64	118.4%
Transport	-	5.44	-	-	5.44	213.9%
<i>of which: road</i>	-	5.43	-	-	5.43	213.4%
Other	-	0.61	-	-	0.61	5.7%
<i>of which: residential</i>	-	0.59	-	-	0.59	87.6%
Reference Approach	1.63	9.09	-	-	10.72	192.1%
Diff. due to losses and/or transformation	-	0.03	-	-	0.03	
Statistical differences	0.00	0.08	-	-	0.08	
<i>Memo: international marine bunkers</i>	-	0.38	-	-	0.38	-
<i>Memo: international aviation bunkers</i>	-	0.07	-	-	0.07	-43.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	5.43	213.4%	19.8	19.8
Main activity prod. elec. and heat - oil	1.68	935.0%	6.1	26.0
Manufacturing industries - oil	1.09	45.5%	4.0	30.0
Main activity prod. elec. and heat - coal/peat	1.08	x	3.9	33.9
Residential - oil	0.59	87.6%	2.2	36.1
Manufacturing industries - coal/peat	0.55	x	2.0	38.0
Unallocated autoproducers - oil	0.17	x	0.6	38.7
Non-specified other - oil	0.01	-94.3%	0.1	38.7
Other transport - oil	0.01	x	0.0	38.7
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>10.61</i>	<i>221.6%</i>	<i>38.7</i>	<i>38.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Haiti

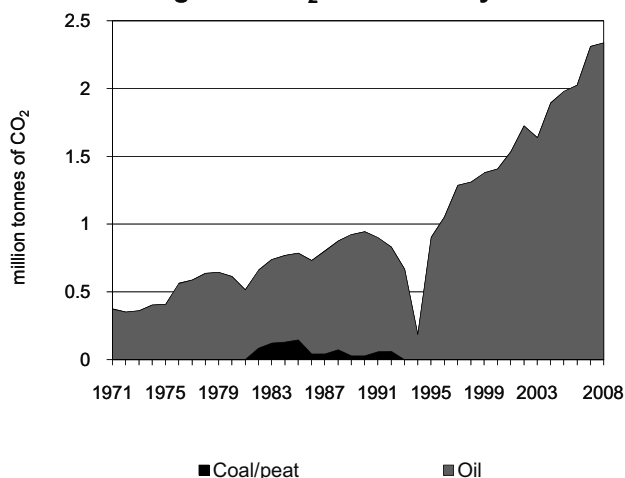
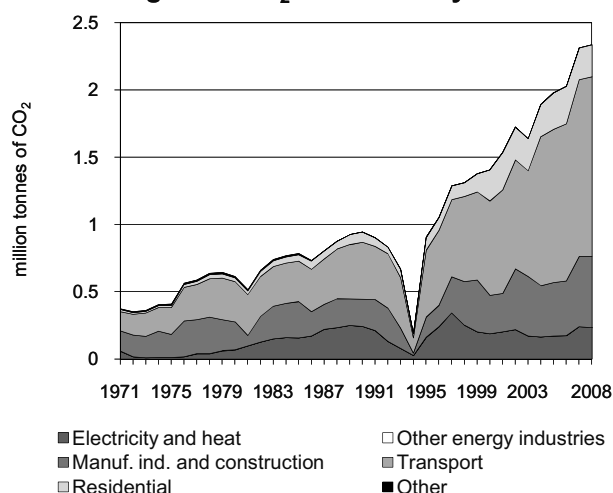
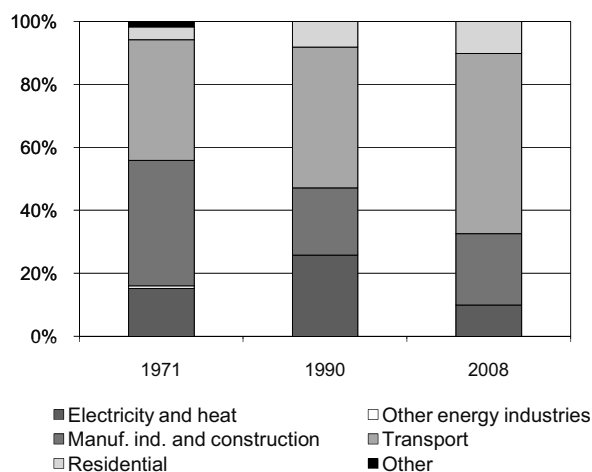
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

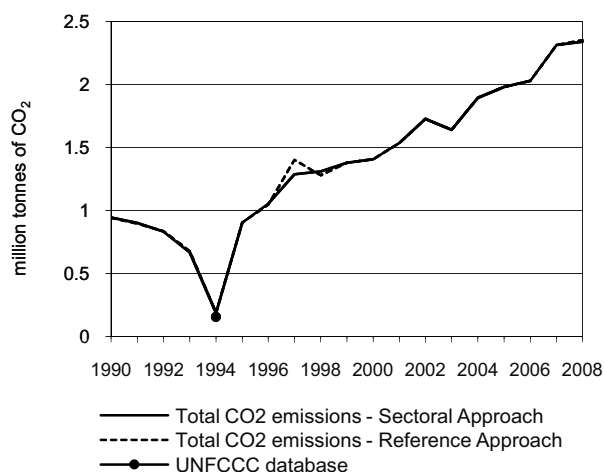


Figure 5. Electricity generation by fuel

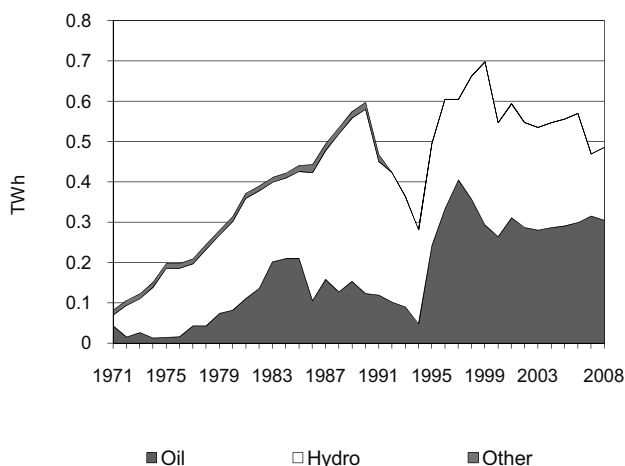
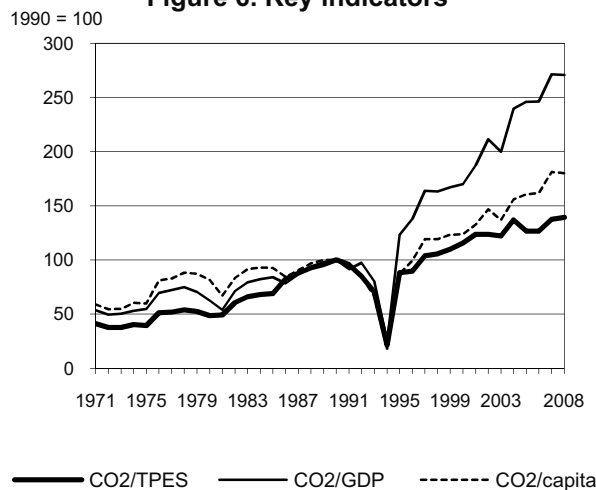


Figure 6. Key indicators



Haiti

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	0.94	0.90	1.41	1.98	2.03	2.31	2.34	147.5%
CO ₂ Reference Approach (Mt of CO ₂)	0.94	0.90	1.41	1.98	2.03	2.31	2.35	149.7%
TPES (PJ)	65	71	84	108	111	116	116	77.7%
TPES (Mtoe)	1.56	1.69	2.01	2.58	2.65	2.78	2.77	77.7%
GDP (billion 2000 USD)	4.39	3.42	3.85	3.74	3.83	3.96	4.01	-8.6%
GDP PPP (billion 2000 USD)	14.67	11.41	12.85	12.50	12.79	13.23	13.40	-8.6%
Population (millions)	7.11	7.84	8.57	9.30	9.45	9.61	9.78	37.6%
CO ₂ / TPES (t CO ₂ per TJ)	14.5	12.8	16.7	18.3	18.3	19.9	20.1	39.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.22	0.26	0.37	0.53	0.53	0.58	0.58	170.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.06	0.08	0.11	0.16	0.16	0.17	0.17	171.0%
CO ₂ / population (t CO ₂ per capita)	0.13	0.12	0.16	0.21	0.21	0.24	0.24	80.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	2.34	-	-	2.34	147.5%
Main activity producer elec. and heat	-	0.23	-	-	0.23	5.4%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	-	0.53	-	-	0.53	162.8%
Transport	-	1.34	-	-	1.34	216.2%
<i>of which: road</i>	-	0.70	-	-	0.70	278.3%
Other	-	0.24	-	-	0.24	211.1%
<i>of which: residential</i>	-	0.24	-	-	0.24	211.1%
Reference Approach	-	2.35	-	-	2.35	149.7%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.01	-	-	0.01	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.07	-	-	0.07	-8.7%

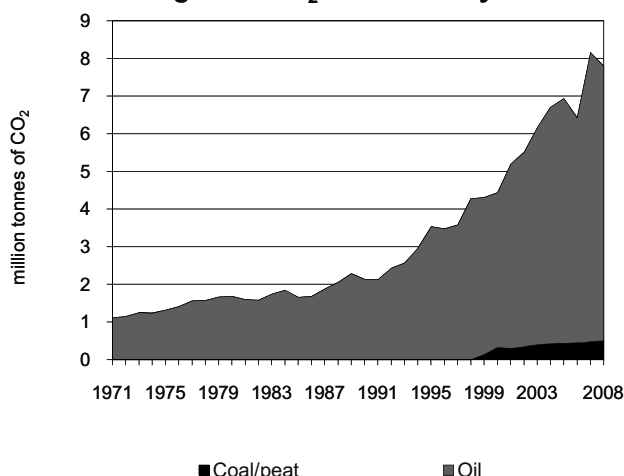
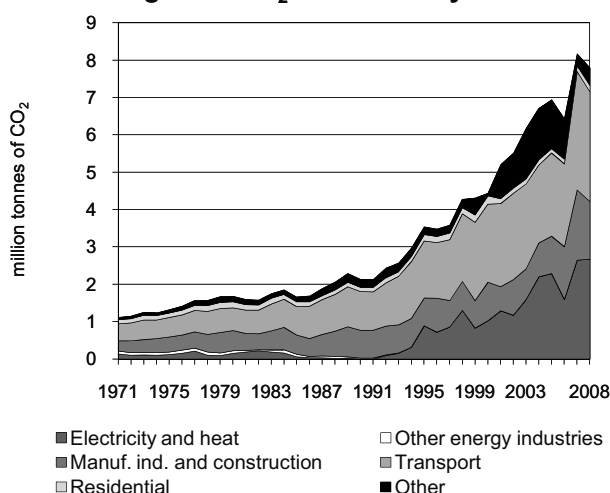
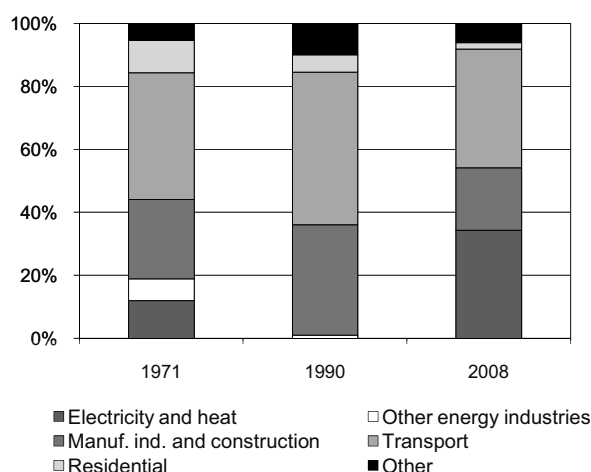
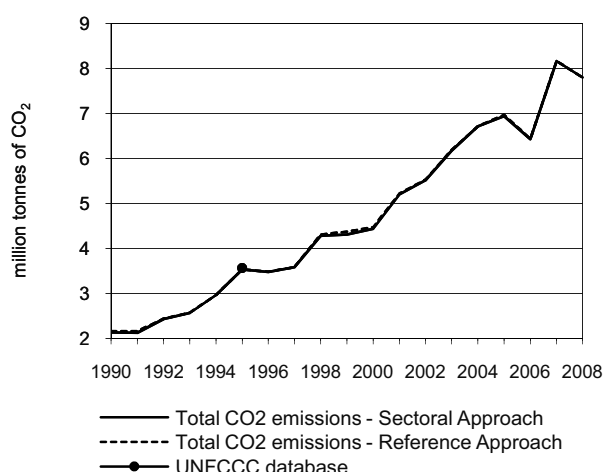
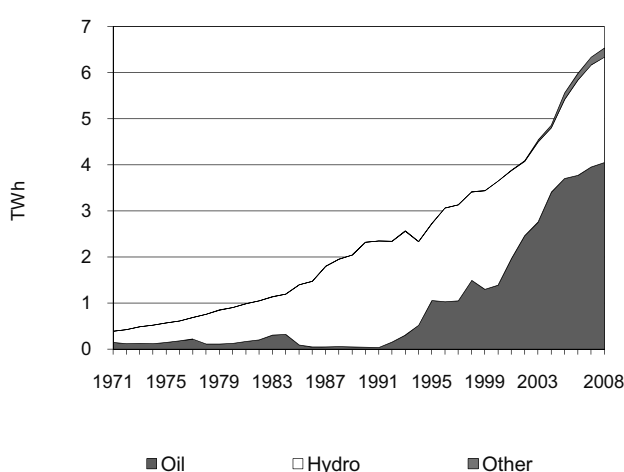
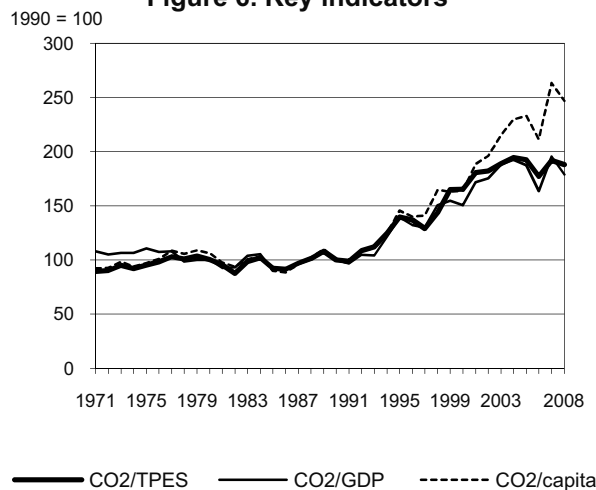
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	0.70	278.3%	8.2	8.2
Other transport - oil	0.64	168.0%	7.5	15.7
Manufacturing industries - oil	0.53	206.3%	6.2	22.0
Residential - oil	0.24	211.1%	2.8	24.8
Main activity prod. elec. and heat - oil	0.23	5.4%	2.7	27.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.34</i>	<i>147.5%</i>	<i>27.5</i>	<i>27.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Honduras

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Honduras

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.13	3.53	4.44	6.94	6.43	8.17	7.80	265.4%
CO ₂ Reference Approach (Mt of CO ₂)	2.16	3.54	4.47	6.97	6.43	8.17	7.80	260.9%
TPES (PJ)	100	118	125	168	169	199	194	94.3%
TPES (Mtoe)	2.38	2.82	3.00	4.02	4.05	4.74	4.62	94.3%
GDP (billion 2000 USD)	5.14	6.12	7.11	8.92	9.48	10.08	10.50	104.2%
GDP PPP (billion 2000 USD)	15.93	18.95	22.01	27.63	29.36	31.21	32.52	104.2%
Population (millions)	4.89	5.57	6.20	6.83	6.97	7.10	7.24	48.1%
CO ₂ / TPES (t CO ₂ per TJ)	21.4	29.9	35.4	41.3	38.0	41.1	40.3	88.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.42	0.58	0.62	0.78	0.68	0.81	0.74	79.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.13	0.19	0.20	0.25	0.22	0.26	0.24	79.0%
CO ₂ / population (t CO ₂ per capita)	0.44	0.63	0.72	1.02	0.92	1.15	1.08	146.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.50	7.30	-	-	7.80	265.4%
Main activity producer elec. and heat	-	2.68	-	-	2.68	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.50	1.04	-	-	1.55	106.6%
Transport	-	2.94	-	-	2.94	184.3%
<i>of which: road</i>	-	2.94	-	-	2.94	184.3%
Other	-	0.64	-	-	0.64	93.1%
<i>of which: residential</i>	-	0.16	-	-	0.16	38.4%
Reference Approach	0.50	7.30	-	-	7.80	260.9%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	0.00	-	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.14	-	-	0.14	55.2%

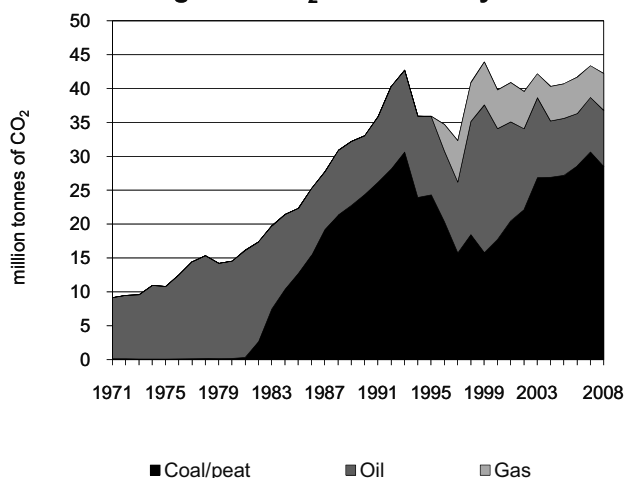
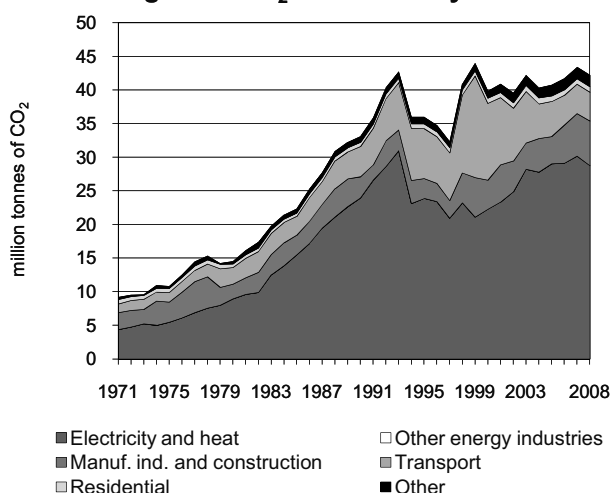
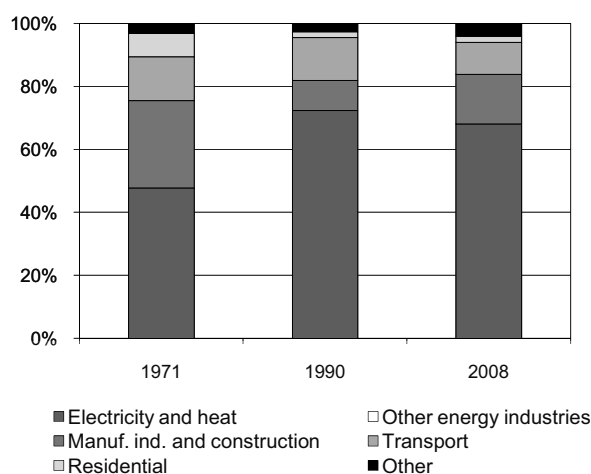
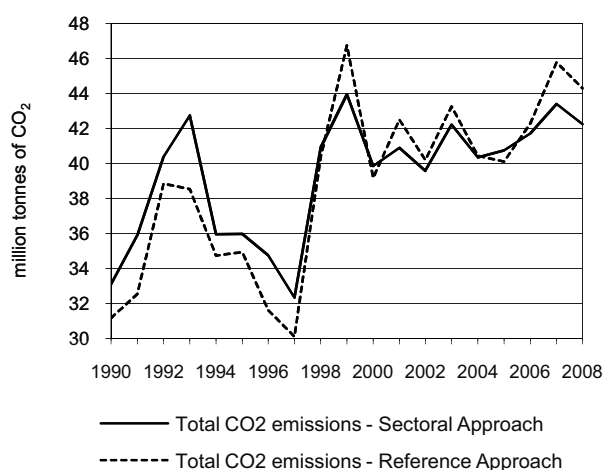
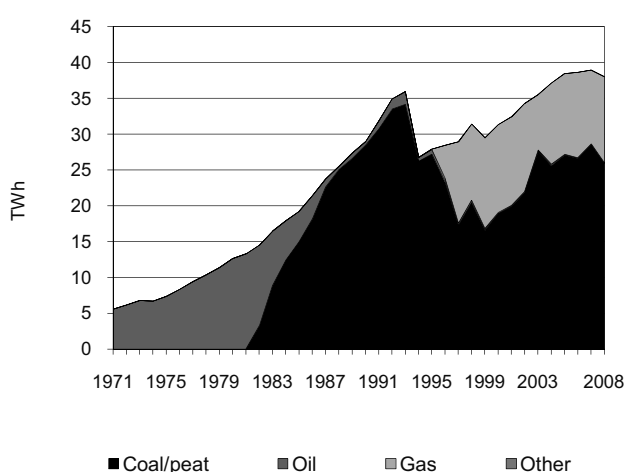
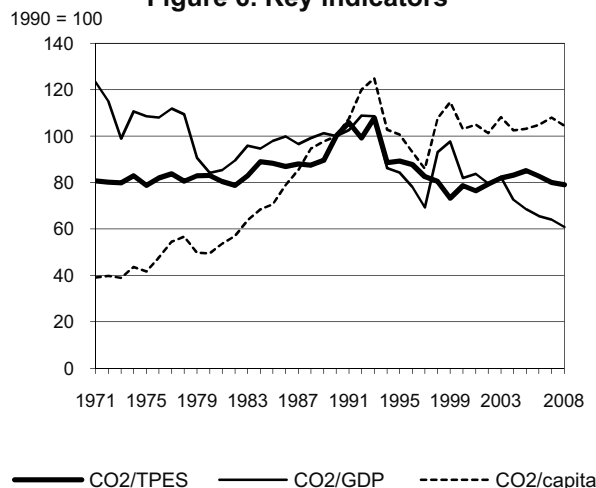
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	2.94	184.3%	17.1	17.1
Main activity prod. elec. and heat - oil	2.68	x	15.6	32.7
Manufacturing industries - oil	1.04	39.9%	6.1	38.8
Manufacturing industries - coal/peat	0.50	+	2.9	41.8
Non-specified other - oil	0.47	123.0%	2.8	44.5
Residential - oil	0.16	38.4%	0.9	45.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.80</i>	<i>265.4%</i>	<i>45.5</i>	<i>45.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Hong Kong, China

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Hong Kong, China

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	33.09	35.97	39.85	40.75	41.72	43.40	42.25	27.7%
CO ₂ Reference Approach (Mt of CO ₂)	31.17	34.94	39.18	40.12	42.29	45.77	44.29	42.1%
TPES (PJ)	366	446	561	530	558	600	592	61.6%
TPES (Mtoe)	8.75	10.65	13.39	12.66	13.33	14.34	14.14	61.6%
GDP (billion 2000 USD)	115.16	148.51	169.12	207.09	221.62	235.76	241.34	109.6%
GDP PPP (billion 2000 USD)	119.23	153.75	175.09	214.40	229.45	244.09	249.86	109.6%
Population (millions)	5.71	6.16	6.67	6.81	6.86	6.93	6.98	22.3%
CO ₂ / TPES (t CO ₂ per TJ)	90.4	80.7	71.1	76.9	74.8	72.3	71.4	-21.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.29	0.24	0.24	0.20	0.19	0.18	0.18	-39.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.28	0.23	0.23	0.19	0.18	0.18	0.17	-39.1%
CO ₂ / population (t CO ₂ per capita)	5.80	5.84	5.98	5.98	6.08	6.27	6.05	4.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	28.50	8.31	5.44	-	42.25	27.7%
Main activity producer elec. and heat	23.23	0.11	5.44	-	28.78	20.1%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	3.95	2.68	-	-	6.63	110.4%
Transport	-	4.30	-	-	4.30	-4.4%
<i>of which: road</i>	-	4.30	-	-	4.30	-4.3%
Other	1.32	1.22	-	-	2.54	71.3%
<i>of which: residential</i>	0.77	0.05	-	-	0.82	36.6%
Reference Approach	27.14	11.09	6.06	-	44.29	42.1%
Diff. due to losses and/or transformation	- 1.36	1.77	0.63	-	1.04	
Statistical differences	-	1.01	-	-	1.01	
<i>Memo: international marine bunkers</i>	-	21.49	-	-	21.49	375.2%
<i>Memo: international aviation bunkers</i>	-	14.15	-	-	14.15	151.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	23.23	-1.7%	48.4	48.4
Main activity prod. elec. and heat - gas	5.44	x	11.3	59.7
Road - oil	4.30	-4.3%	9.0	68.7
Manufacturing industries - coal/peat	3.95	+	8.2	76.9
Manufacturing industries - oil	2.68	-14.1%	5.6	82.5
Non-specified other - oil	1.17	116.4%	2.4	84.9
Residential - coal/peat	0.77	105.1%	1.6	86.5
Non-specified other sectors - coal/peat	0.55	61.3%	1.1	87.7
Main activity prod. elec. and heat - oil	0.11	-64.4%	0.2	87.9
Residential - oil	0.05	-76.7%	0.1	88.0
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>42.25</i>	<i>27.7%</i>	<i>88.0</i>	<i>88.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Hungary

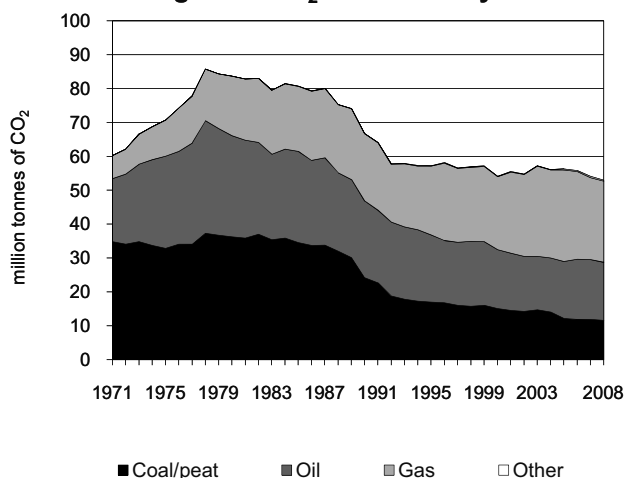
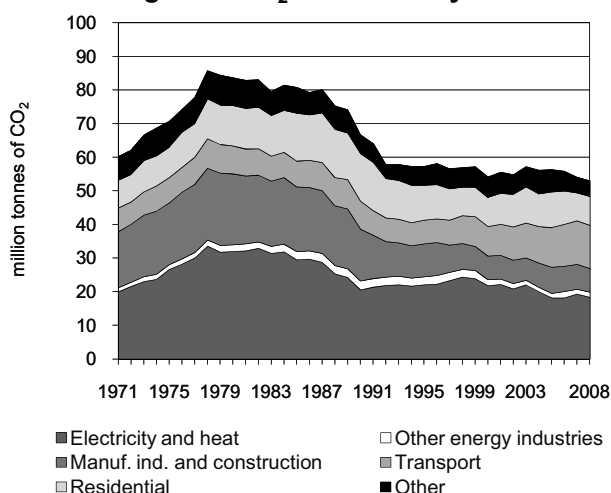
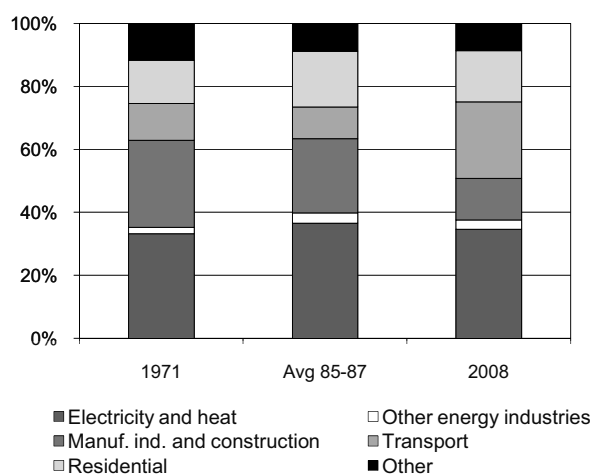
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

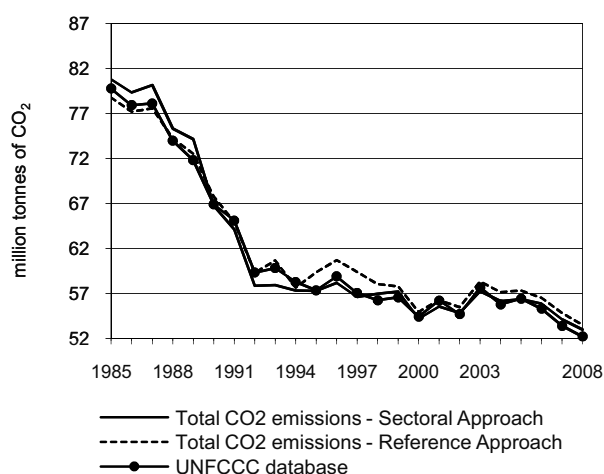


Figure 5. Electricity generation by fuel

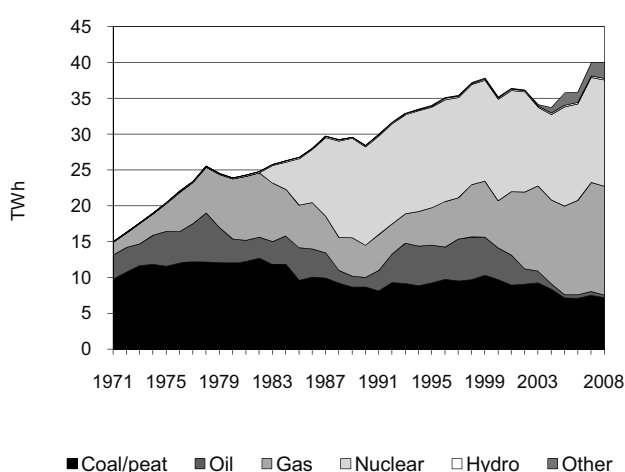
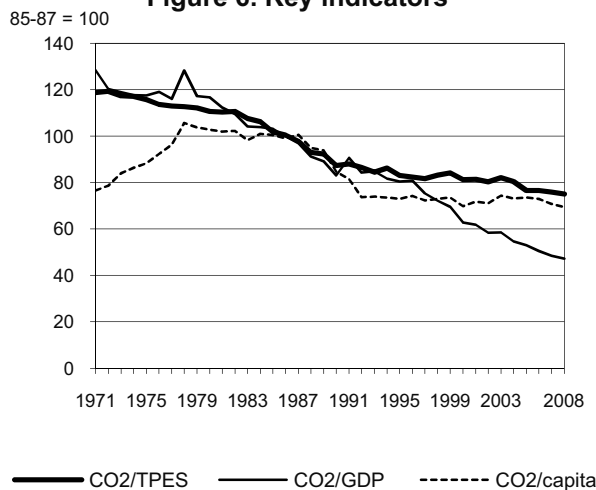


Figure 6. Key indicators



Hungary *

Key indicators

	Avg 85-87	1990	1995	2005	2006	2007	2008	% change base-08
CO ₂ Sectoral Approach (Mt of CO ₂)	80.10	66.74	57.31	56.36	55.87	54.12	53.01	-33.8%
CO ₂ Reference Approach (Mt of CO ₂)	77.85	67.74	59.35	57.33	56.53	54.86	53.54	-31.2%
TPES (PJ)	1 258	1 200	1 083	1 155	1 144	1 119	1 108	-11.9%
TPES (Mtoe)	30.04	28.66	25.87	27.58	27.33	26.73	26.46	-11.9%
GDP (billion 2000 USD)	43.88	43.99	39.03	58.20	60.51	61.10	61.49	40.1%
GDP PPP (billion 2000 USD)	114.78	115.05	102.08	152.23	158.27	159.80	160.83	40.1%
Population (millions)	10.53	10.37	10.33	10.09	10.07	10.06	10.04	-4.7%
CO ₂ / TPES (t CO ₂ per TJ)	63.7	55.6	52.9	48.8	48.8	48.4	47.9	-24.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.83	1.52	1.47	0.97	0.92	0.89	0.86	-52.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.70	0.58	0.56	0.37	0.35	0.34	0.33	-52.8%
CO ₂ / population (t CO ₂ per capita)	7.60	6.44	5.55	5.59	5.55	5.38	5.28	-30.6%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Hungary is allowed to use average 85-87 as the base year.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change base-08
Sectoral Approach	11.60	17.18	23.92	0.31	53.01	-33.8%
Main activity producer elec. and heat	9.12	0.37	8.47	0.22	18.17	-28.9%
Unallocated autoproducers	0.00	-	0.23	-	0.23	-93.9%
Other energy industries	0.17	0.98	0.38	-	1.53	-40.4%
Manufacturing industries and construction	1.65	1.89	3.38	0.09	7.01	-62.9%
Transport	-	12.85	0.00	-	12.85	59.9%
<i>of which: road</i>	-	12.56	0.00	-	12.56	80.8%
Other	0.66	1.10	11.45	-	13.22	-37.9%
<i>of which: residential</i>	0.64	0.27	7.70	-	8.61	-39.3%
Reference Approach	12.00	16.83	24.40	0.31	53.54	-31.2%
Diff. due to losses and/or transformation	0.38	- 0.36	0.48	-	0.50	
Statistical differences	0.02	0.01	0.00	-	0.03	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.82	-	-	0.82	85.9%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change base-08	Level assessment (%) ***	Cumulative total (%)
Road - oil	12.56	80.8%	17.0	17.0
Main activity prod. elec. and heat - coal/peat	9.12	-45.4%	12.3	29.3
Main activity prod. elec. and heat - gas	8.47	78.4%	11.5	40.8
Residential - gas	7.70	209.6%	10.4	51.2
Non-specified other - gas	3.76	117.5%	5.1	56.3
Manufacturing industries - gas	3.38	-62.0%	4.6	60.9
Manufacturing industries - oil	1.89	-55.9%	2.6	63.4
Manufacturing industries - coal/peat	1.65	-71.2%	2.2	65.6
Other energy industries - oil	0.98	-48.3%	1.3	67.0
Non-specified other - oil	0.83	-79.9%	1.1	68.1
Residential - coal/peat	0.64	-92.9%	0.9	69.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>53.01</i>	<i>-33.8%</i>	<i>71.7</i>	<i>71.7</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Iceland

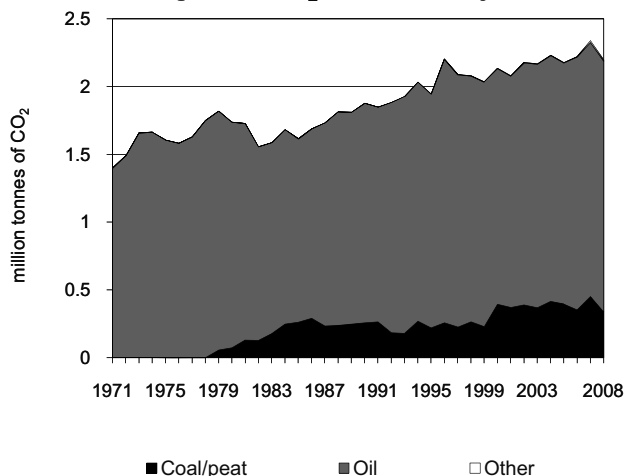
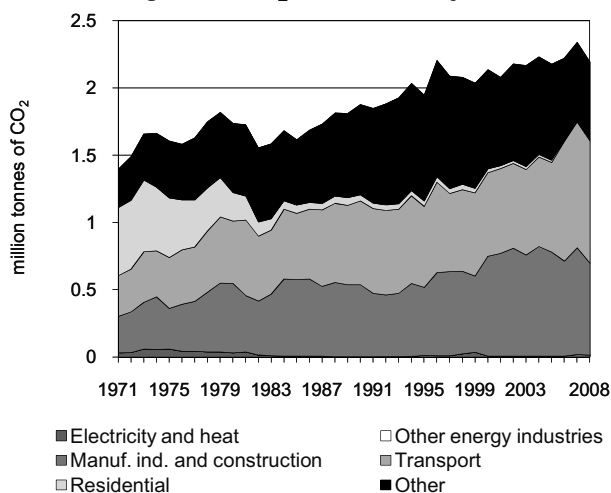
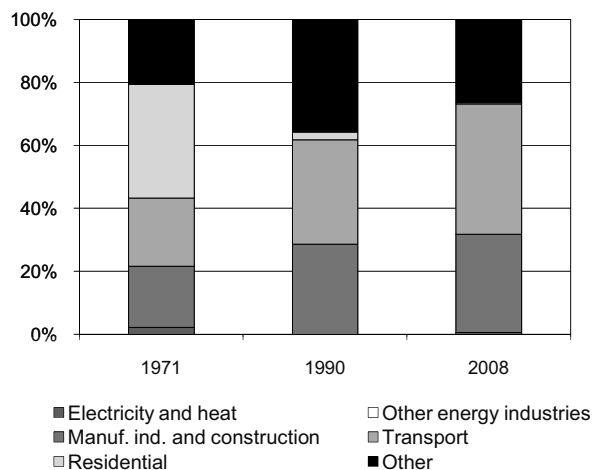
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

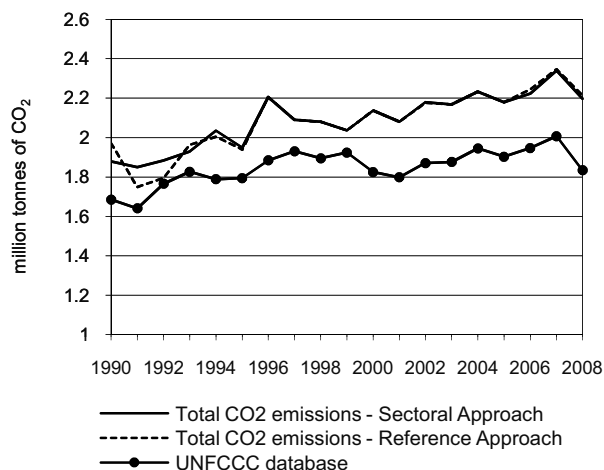


Figure 5. Electricity generation by fuel

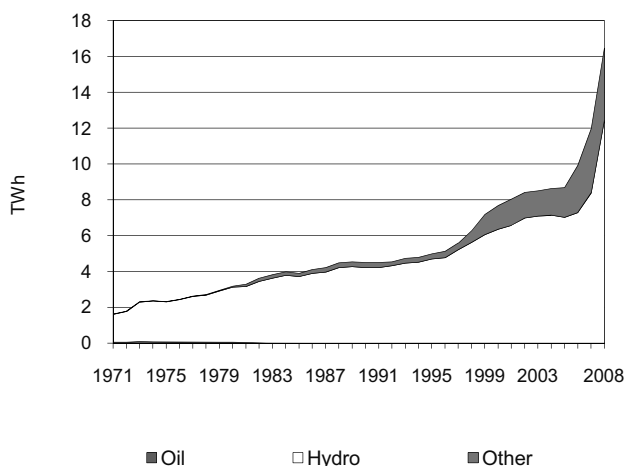
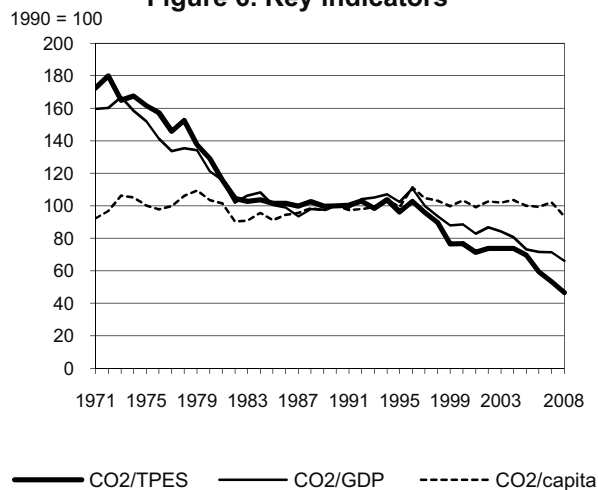


Figure 6. Key indicators



Iceland

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1.88	1.95	2.14	2.18	2.22	2.34	2.20	17.0%
CO ₂ Reference Approach (Mt of CO ₂)	1.97	1.94	2.14	2.18	2.24	2.35	2.21	12.3%
TPES (PJ)	87	94	130	146	174	205	220	151.6%
TPES (Mtoe)	2.09	2.25	3.10	3.48	4.16	4.89	5.26	151.6%
GDP (billion 2000 USD)	6.76	6.85	8.70	10.73	11.20	11.82	11.98	77.1%
GDP PPP (billion 2000 USD)	6.31	6.39	8.11	10.01	10.44	11.02	11.17	77.1%
Population (millions)	0.26	0.27	0.28	0.30	0.30	0.31	0.32	25.1%
CO ₂ / TPES (t CO ₂ per TJ)	21.5	20.7	16.5	15.0	12.8	11.4	10.0	-53.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.28	0.28	0.25	0.20	0.20	0.20	0.18	-33.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.30	0.30	0.26	0.22	0.21	0.21	0.20	-33.9%
CO ₂ / population (t CO ₂ per capita)	7.37	7.30	7.60	7.36	7.31	7.53	6.89	-6.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.34	1.85	-	0.01	2.20	17.0%
Main activity producer elec. and heat	-	0.01	-	0.01	0.01	367.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	0.34	0.35	-	-	0.69	27.9%
Transport	-	0.91	-	-	0.91	45.9%
<i>of which: road</i>	-	0.83	-	-	0.83	56.9%
Other	-	0.59	-	-	0.59	-17.8%
<i>of which: residential</i>	-	0.01	-	-	0.01	-80.4%
Reference Approach	0.34	1.87	-	0.01	2.21	12.3%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.02	-	0.00	0.02	-
<i>Memo: international marine bunkers</i>	-	0.19	-	-	0.19	96.5%
<i>Memo: international aviation bunkers</i>	-	0.35	-	-	0.35	60.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	0.83	56.9%	15.8	15.8
Non-specified other - oil	0.58	-13.4%	11.1	26.9
Manufacturing industries - oil	0.35	25.4%	6.6	33.6
Manufacturing industries - coal/peat	0.34	30.6%	6.4	40.0
Other transport - oil	0.08	-16.9%	1.5	41.5
Residential - oil	0.01	-80.4%	0.2	41.6
Main activity prod. elec. and heat - other	0.01	x	0.2	41.8
Main activity prod. elec. and heat - oil	0.01	100.0%	0.1	41.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.20</i>	<i>17.0%</i>	<i>41.9</i>	<i>41.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

India

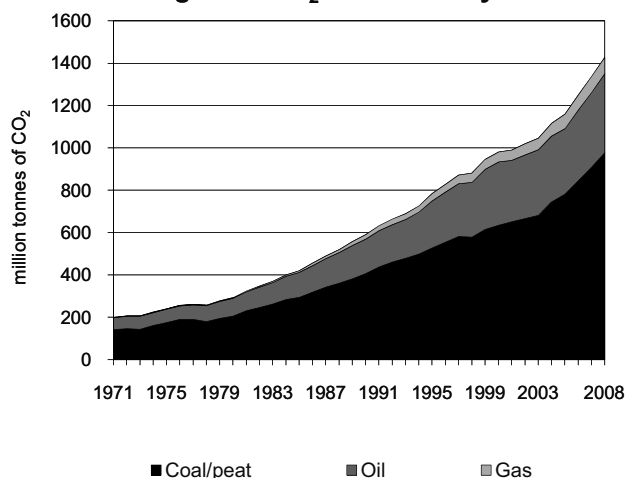
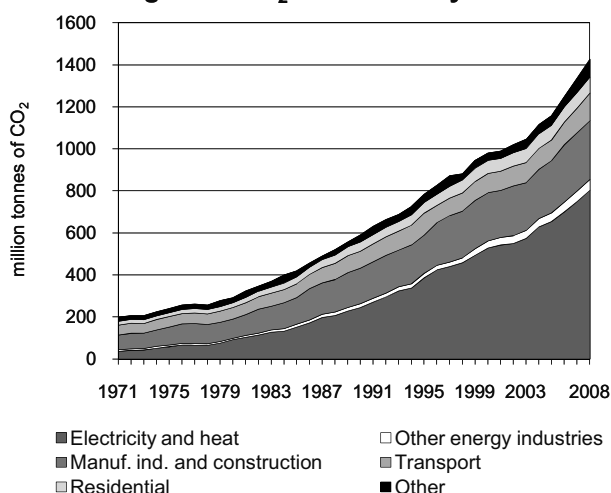
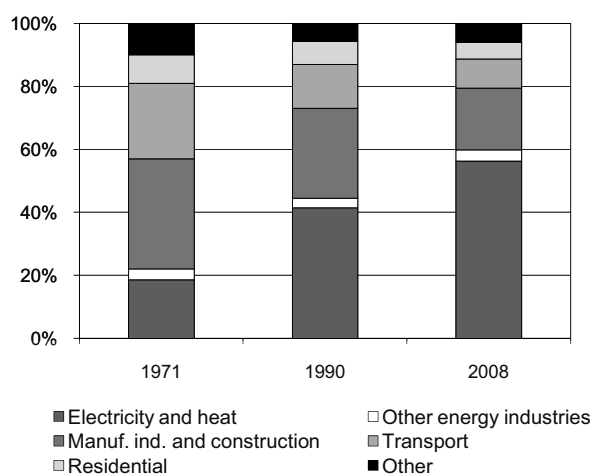
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

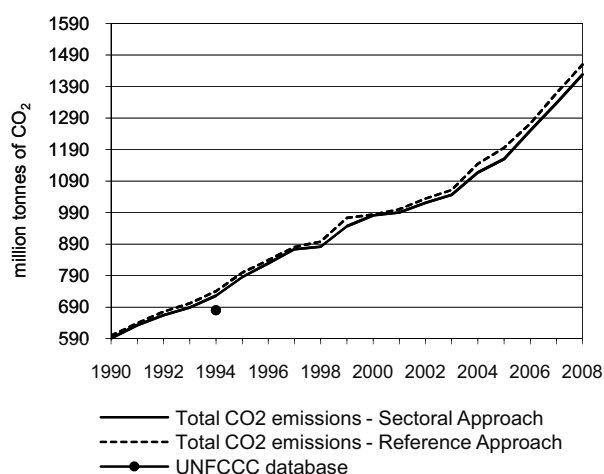


Figure 5. Electricity generation by fuel

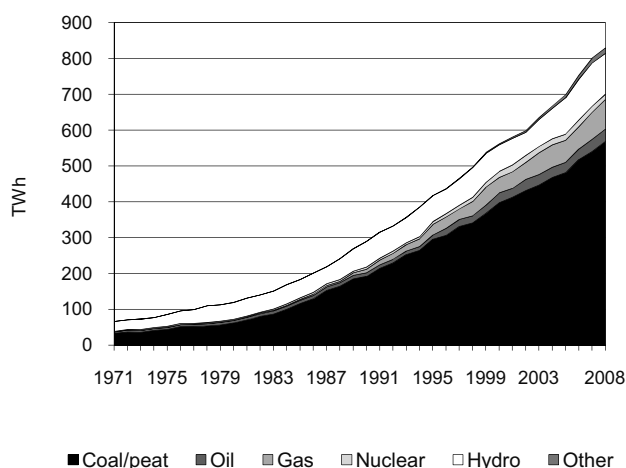
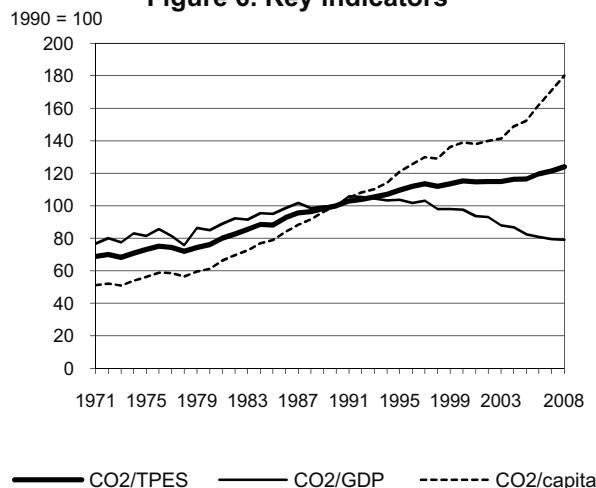


Figure 6. Key indicators



India

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	590.98	785.03	981.27	1 159.54	1 249.92	1 337.87	1 427.64	141.6%
CO ₂ Reference Approach (Mt of CO ₂)	599.61	799.73	982.95	1 195.31	1 272.90	1 368.61	1 459.10	143.3%
TPES (PJ)	13 352	16 177	19 236	22 477	23 602	24 916	25 999	94.7%
TPES (Mtoe)	318.90	386.37	459.45	536.86	563.73	595.11	620.97	94.7%
GDP (billion 2000 USD)	270.50	346.59	460.18	644.70	707.03	771.09	825.77	205.3%
GDP PPP (billion 2000 USD)	1 411.90	1 809.11	2 402.02	3 365.13	3 690.51	4 024.89	4 310.30	205.3%
Population (millions)	849.52	932.18	1 015.92	1 094.58	1 109.81	1 124.79	1 139.97	34.2%
CO ₂ / TPES (t CO ₂ per TJ)	44.3	48.5	51.0	51.6	53.0	53.7	54.9	24.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.18	2.27	2.13	1.80	1.77	1.74	1.73	-20.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.42	0.43	0.41	0.34	0.34	0.33	0.33	-20.9%
CO ₂ / population (t CO ₂ per capita)	0.70	0.84	0.97	1.06	1.13	1.19	1.25	80.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	977.72	373.61	76.31	-	1 427.64	141.6%
Main activity producer elec. and heat	663.41	20.38	24.38	-	708.17	223.6%
Unallocated autoproducers	73.68	9.79	12.11	-	95.58	260.5%
Other energy industries	2.76	36.91	11.04	-	50.71	188.4%
Manufacturing industries and construction	163.80	93.85	22.17	-	279.82	65.4%
Transport	-	127.22	4.66	-	131.88	61.3%
<i>of which: road</i>	-	116.43	4.66	-	121.08	84.1%
Other	74.08	85.46	1.95	-	161.48	109.2%
<i>of which: residential</i>	10.97	62.70	1.65	-	75.32	73.0%
Reference Approach	1 011.73	371.06	76.31	-	1 459.10	143.3%
Diff. due to losses and/or transformation	26.28	- 5.31	-	-	20.97	
Statistical differences	7.72	2.77	-	-	10.49	
<i>Memo: international marine bunkers</i>	-	0.45	-	-	0.45	-4.5%
<i>Memo: international aviation bunkers</i>	-	14.06	-	-	14.06	165.7%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	663.41	226.3%	27.7	27.7
Manufacturing industries - coal/peat	163.80	32.2%	6.8	34.6
Road - oil	116.43	77.0%	4.9	39.4
Manufacturing industries - oil	93.85	157.7%	3.9	43.3
Unallocated autoproducers - coal/peat	73.68	225.6%	3.1	46.4
Non-specified other sectors - coal/peat	63.11	112.2%	2.6	49.0
Residential - oil	62.70	96.9%	2.6	51.7
Other energy industries - oil	36.91	339.6%	1.5	53.2
Main activity prod. elec. and heat - gas	24.38	246.8%	1.0	54.2
Non-specified other - oil	22.76	511.5%	1.0	55.2
Manufacturing industries - gas	22.17	151.3%	0.9	56.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>1427.64</i>	<i>141.6%</i>	<i>59.6</i>	<i>59.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Indonesia

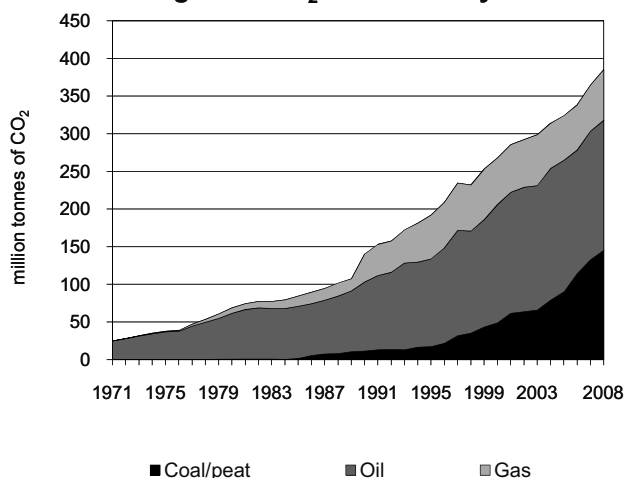
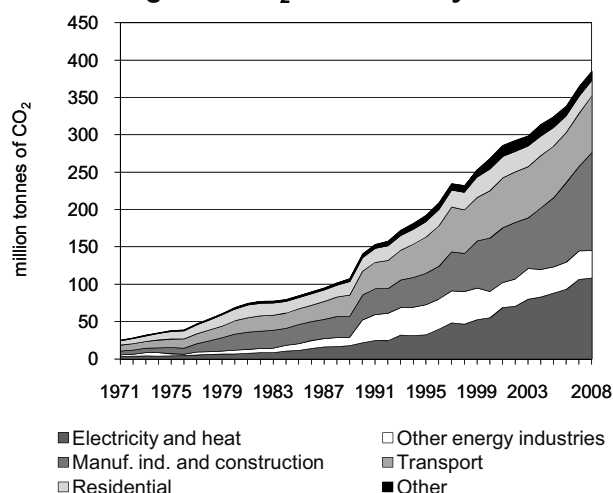
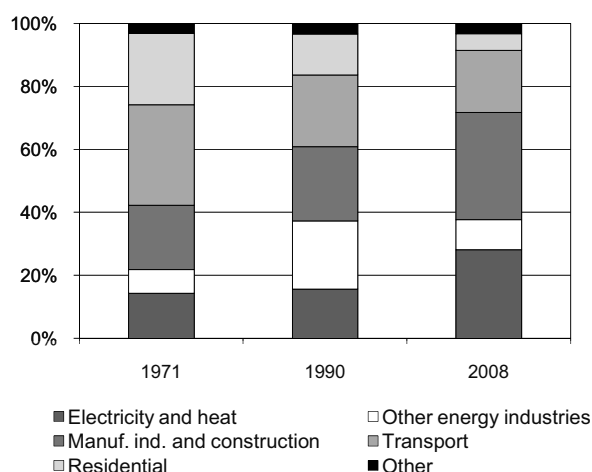
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

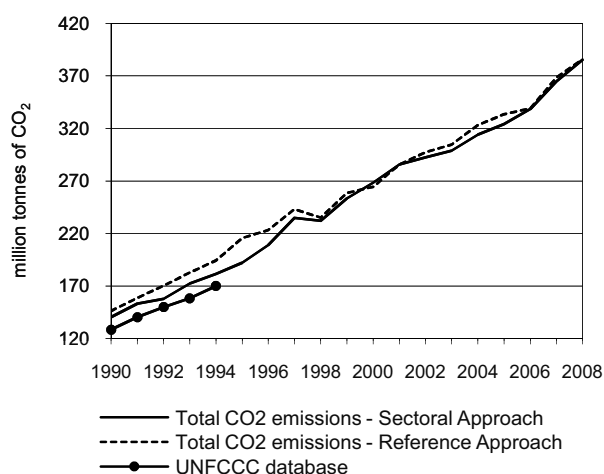


Figure 5. Electricity generation by fuel

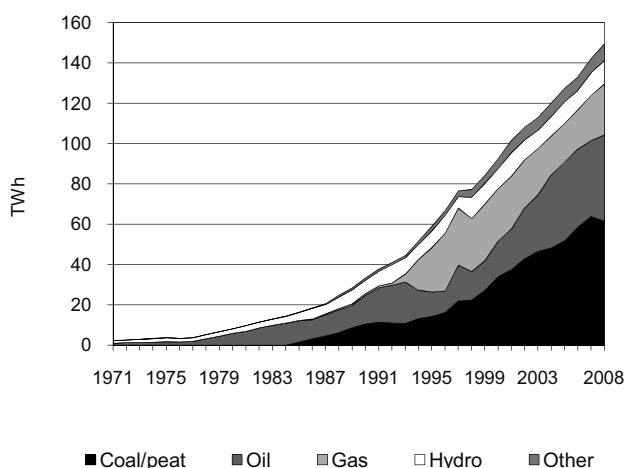
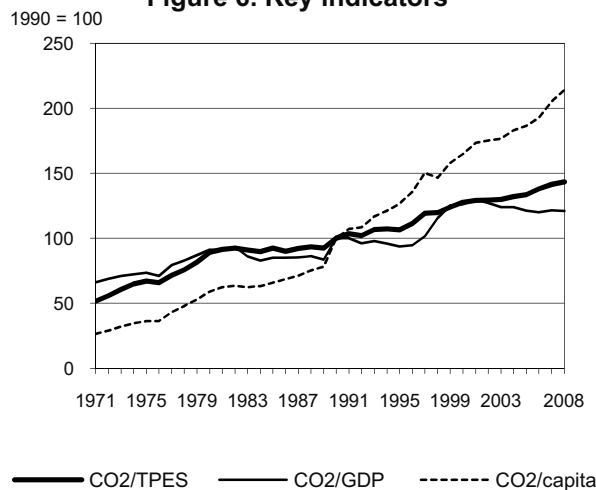


Figure 6. Key indicators



Indonesia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	140.54	192.35	268.24	324.23	338.58	364.81	385.38	174.2%
CO ₂ Reference Approach (Mt of CO ₂)	146.13	215.59	264.38	333.68	338.95	368.72	386.09	164.2%
TPES (PJ)	4 351	5 596	6 508	7 513	7 593	7 981	8 318	91.2%
TPES (Mtoe)	103.92	133.65	155.44	179.44	181.35	190.62	198.68	91.2%
GDP (billion 2000 USD)	109.15	159.38	165.02	207.89	219.33	233.10	247.23	126.5%
GDP PPP (billion 2000 USD)	396.38	578.79	599.27	754.95	796.48	846.48	897.80	126.5%
Population (millions)	178.23	192.75	206.27	220.56	223.04	225.63	228.25	28.1%
CO ₂ / TPES (t CO ₂ per TJ)	32.3	34.4	41.2	43.2	44.6	45.7	46.3	43.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.29	1.21	1.63	1.56	1.54	1.57	1.56	21.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.35	0.33	0.45	0.43	0.43	0.43	0.43	21.0%
CO ₂ / population (t CO ₂ per capita)	0.79	1.00	1.30	1.47	1.52	1.62	1.69	114.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	145.07	173.00	67.31	-	385.38	174.2%
Main activity producer elec. and heat	64.29	31.03	12.77	-	108.10	392.4%
Unallocated autoproducers	-	0.39	0.02	-	0.41	x
Other energy industries	-	7.61	29.21	-	36.82	21.0%
Manufacturing industries and construction	80.78	25.13	25.12	-	131.03	294.2%
Transport	-	75.88	0.04	-	75.91	138.2%
<i>of which: road</i>	-	68.92	0.04	-	68.96	141.1%
Other	-	32.95	0.15	-	33.10	43.5%
<i>of which: residential</i>	-	20.64	0.04	-	20.68	13.0%
Reference Approach	145.16	169.51	71.42	-	386.09	164.2%
Diff. due to losses and/or transformation	0.09	- 2.53	4.11	-	1.67	
Statistical differences	- 0.00	- 0.95	-	-	- 0.95	
<i>Memo: international marine bunkers</i>	-	1.39	-	-	1.39	-17.5%
<i>Memo: international aviation bunkers</i>	-	3.65	-	-	3.65	279.0%

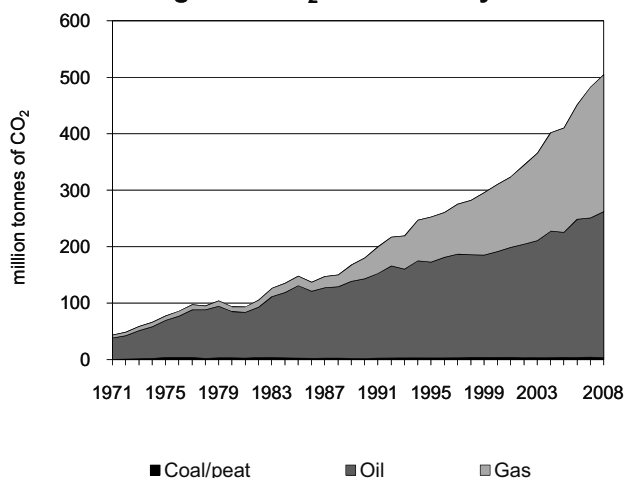
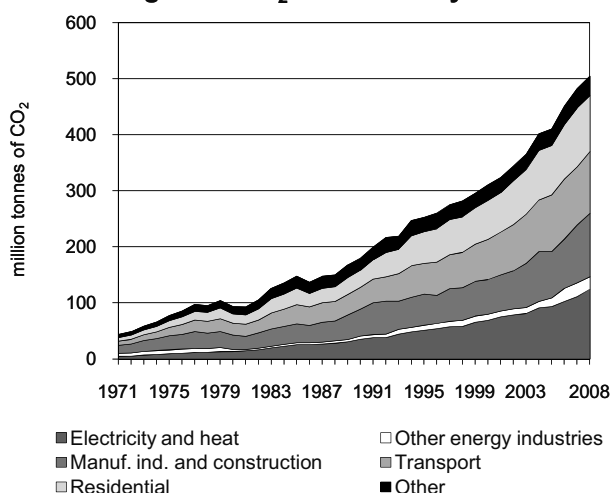
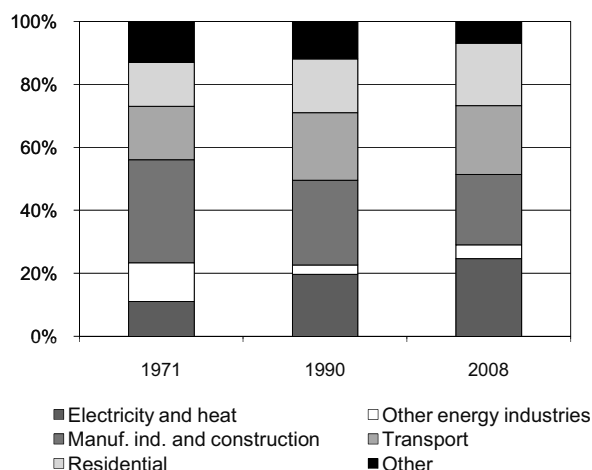
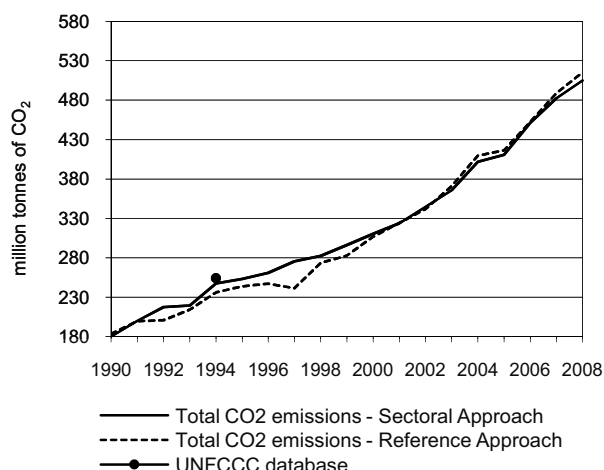
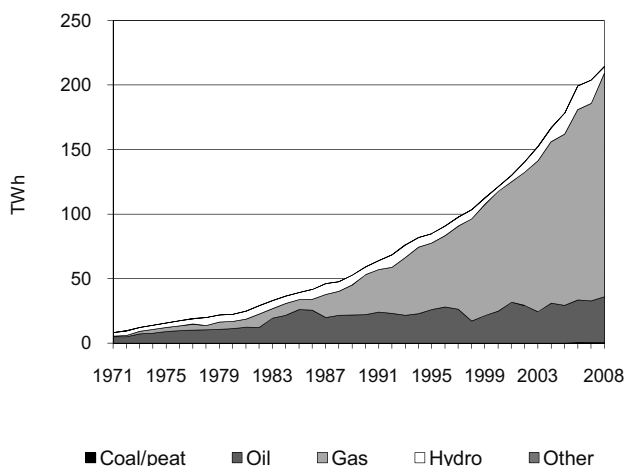
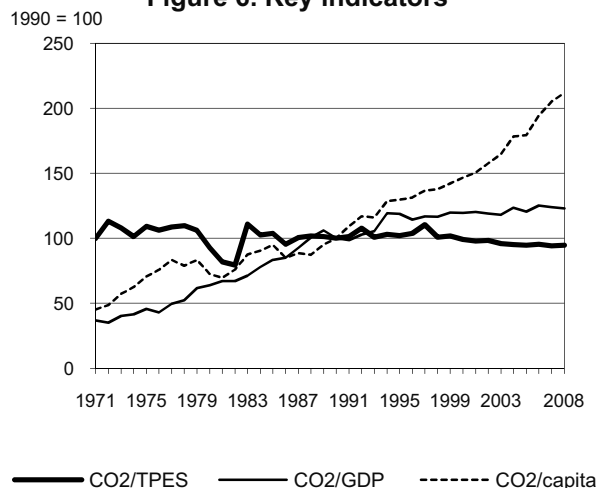
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	80.78	+	10.5	10.5
Road - oil	68.92	141.0%	9.0	19.5
Main activity prod. elec. and heat - coal/peat	64.29	602.0%	8.4	27.8
Main activity prod. elec. and heat - oil	31.03	157.6%	4.0	31.9
Other energy industries - gas	29.21	20.6%	3.8	35.6
Manufacturing industries - oil	25.13	37.3%	3.3	38.9
Manufacturing industries - gas	25.12	102.9%	3.3	42.2
Residential - oil	20.64	12.8%	2.7	44.9
Main activity prod. elec. and heat - gas	12.77	+	1.7	46.5
Non-specified other - oil	12.31	158.6%	1.6	48.1
Other energy industries - oil	7.61	22.8%	1.0	49.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>385.38</i>	<i>174.2%</i>	<i>50.1</i>	<i>50.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Islamic Republic of Iran

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Islamic Republic of Iran

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	180.23	253.14	310.60	410.55	451.44	482.77	505.01	180.2%
CO ₂ Reference Approach (Mt of CO ₂)	183.33	243.72	306.93	416.59	452.65	488.99	515.07	180.9%
TPES (PJ)	2 861	3 934	4 982	6 888	7 510	8 130	8 460	195.7%
TPES (Mtoe)	68.33	93.95	119.00	164.52	179.37	194.18	202.05	195.7%
GDP (billion 2000 USD)	70.29	83.07	101.29	132.95	140.79	151.80	160.30	128.0%
GDP PPP (billion 2000 USD)	256.54	303.18	369.66	485.22	513.81	554.02	585.04	128.0%
Population (millions)	54.40	58.95	63.94	69.09	70.10	71.02	71.96	32.3%
CO ₂ / TPES (t CO ₂ per TJ)	63.0	64.4	62.3	59.6	60.1	59.4	59.7	-5.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.56	3.05	3.07	3.09	3.21	3.18	3.15	22.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.70	0.83	0.84	0.85	0.88	0.87	0.86	22.9%
CO ₂ / population (t CO ₂ per capita)	3.31	4.29	4.86	5.94	6.44	6.80	7.02	111.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	3.69	258.65	242.67	-	505.01	180.2%
Main activity producer elec. and heat	-	37.63	82.10	-	119.73	266.0%
Unallocated autoproducers	1.29	0.06	3.71	-	5.05	76.0%
Other energy industries	0.73	9.84	11.26	-	21.82	307.0%
Manufacturing industries and construction	1.48	57.26	54.56	-	113.29	134.1%
Transport	-	106.57	3.64	-	110.21	184.4%
<i>of which: road</i>	-	106.57	3.64	-	110.21	184.4%
Other	0.20	47.30	87.40	-	134.91	158.8%
<i>of which: residential</i>	0.03	23.49	76.35	-	99.88	226.2%
Reference Approach	6.35	255.60	253.12	-	515.07	180.9%
Diff. due to losses and/or transformation	0.47	- 0.45	3.39	-	3.41	
Statistical differences	2.18	- 2.61	7.07	-	6.64	
<i>Memo: international marine bunkers</i>	-	2.61	-	-	2.61	67.5%
<i>Memo: international aviation bunkers</i>	-	3.22	-	-	3.22	117.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	106.57	175.0%	15.1	15.1
Main activity prod. elec. and heat - gas	82.10	423.9%	11.7	26.8
Residential - gas	76.35	+	10.8	37.6
Manufacturing industries - oil	57.26	77.9%	8.1	45.8
Manufacturing industries - gas	54.56	287.2%	7.7	53.5
Main activity prod. elec. and heat - oil	37.63	120.8%	5.3	58.8
Non-specified other - oil	23.80	10.6%	3.4	62.2
Residential - oil	23.49	-4.2%	3.3	65.6
Other energy industries - gas	11.26	889.2%	1.6	67.2
Non-specified other - gas	11.05	x	1.6	68.7
Other energy industries - oil	9.84	132.9%	1.4	70.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>505.01</i>	<i>180.2%</i>	<i>71.7</i>	<i>71.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Iraq

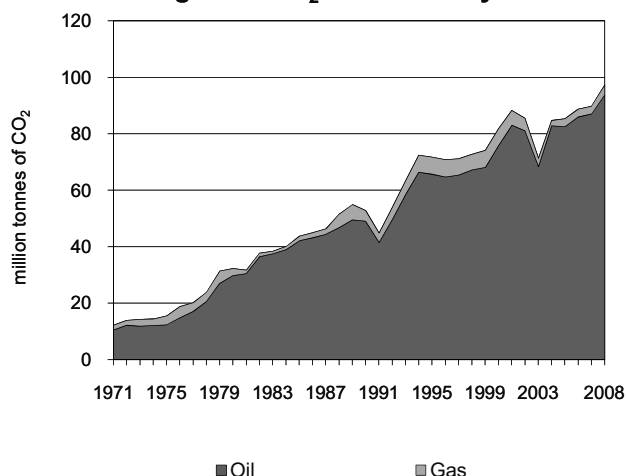
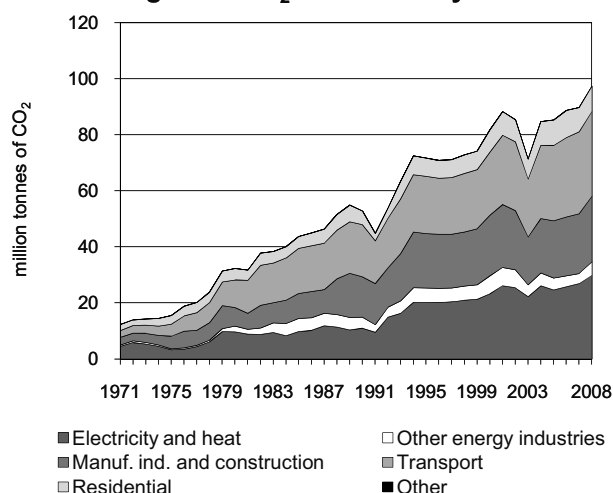
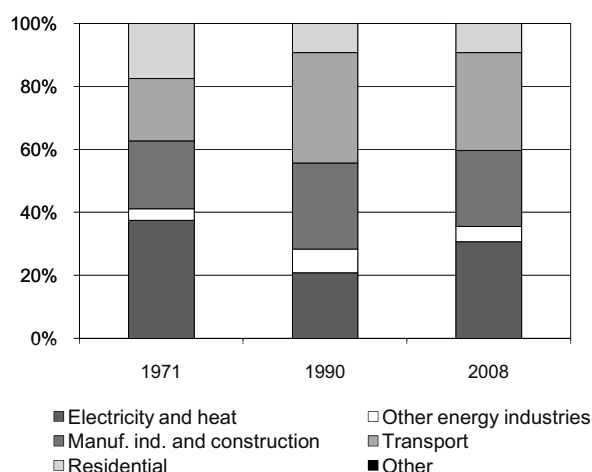
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

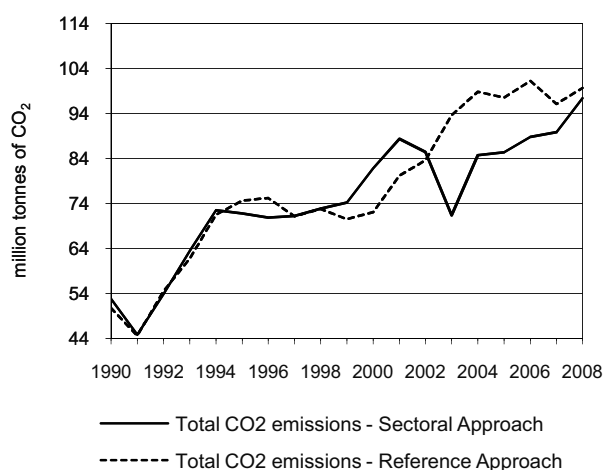


Figure 5. Electricity generation by fuel

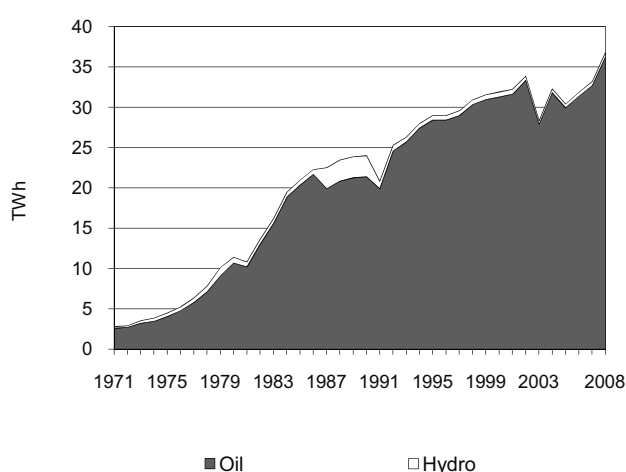
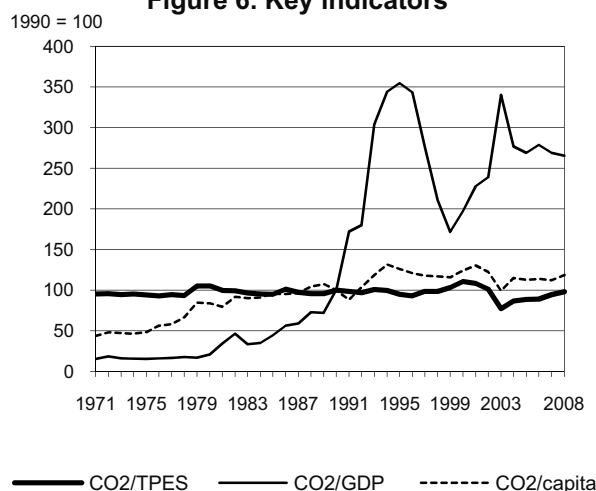


Figure 6. Key indicators



Iraq

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	52.85	71.77	81.81	85.36	88.78	89.83	97.38	84.3%
CO ₂ Reference Approach (Mt of CO ₂)	50.76	74.61	72.10	97.50	101.20	96.08	99.64	96.3%
TPES (PJ)	757	1 087	1 063	1 386	1 435	1 362	1 423	88.0%
TPES (Mtoe)	18.09	25.96	25.38	33.10	34.27	32.54	33.99	88.0%
GDP (billion 2000 USD)	32.96	12.62	25.90	19.81	19.87	20.86	22.90	-30.5%
GDP PPP (billion 2000 USD)	45.06	17.25	35.41	27.08	27.16	28.52	31.30	-30.5%
Population (millions)	18.14	19.56	22.68	26.08	26.78	27.50	28.22	55.6%
CO ₂ / TPES (t CO ₂ per TJ)	69.8	66.0	77.0	61.6	61.9	65.9	68.4	-2.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.60	5.69	3.16	4.31	4.47	4.31	4.25	165.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.17	4.16	2.31	3.15	3.27	3.15	3.11	165.3%
CO ₂ / population (t CO ₂ per capita)	2.91	3.67	3.61	3.27	3.31	3.27	3.45	18.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	93.80	3.59	-	97.38	84.3%
Main activity producer elec. and heat	-	29.87	-	-	29.87	170.9%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	4.82	-	-	4.82	22.3%
Manufacturing industries and construction	-	19.82	3.59	-	23.41	62.1%
Transport	-	30.25	-	-	30.25	63.0%
<i>of which: road</i>	-	30.25	-	-	30.25	63.0%
Other	-	9.03	-	-	9.03	85.0%
<i>of which: residential</i>	-	9.03	-	-	9.03	85.0%
Reference Approach	-	96.05	3.59	-	99.64	96.3%
Diff. due to losses and/or transformation	-	3.36	-	-	3.36	
Statistical differences	-	- 1.11	-	-	- 1.11	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	1.99	-	-	1.99	-31.2%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	30.25	63.0%	24.9	24.9
Main activity prod. elec. and heat - oil	29.87	170.9%	24.6	49.4
Manufacturing industries - oil	19.82	85.9%	16.3	65.7
Residential - oil	9.03	85.0%	7.4	73.2
Other energy industries - oil	4.82	22.3%	4.0	77.1
Manufacturing industries - gas	3.59	-5.1%	3.0	80.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>97.38</i>	<i>84.3%</i>	<i>80.1</i>	<i>80.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ireland

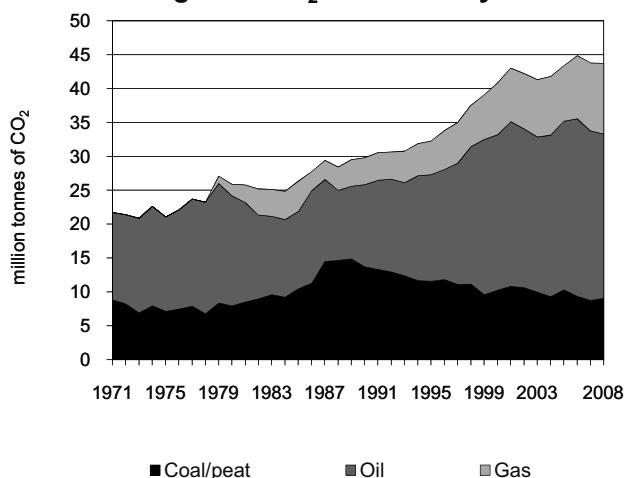
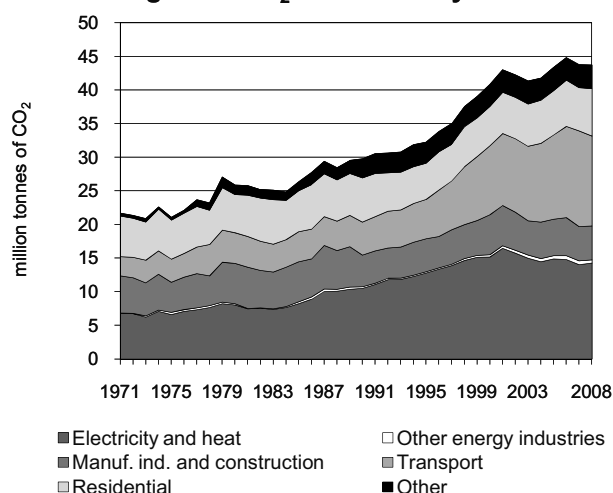
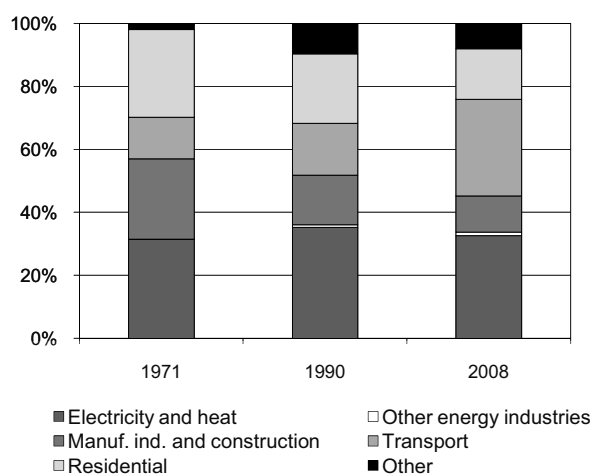
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

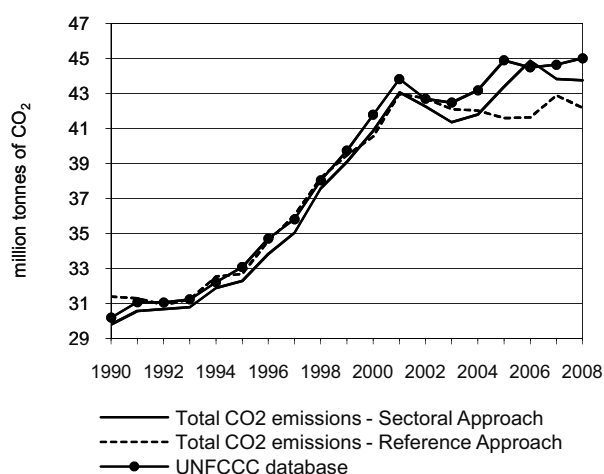


Figure 5. Electricity generation by fuel

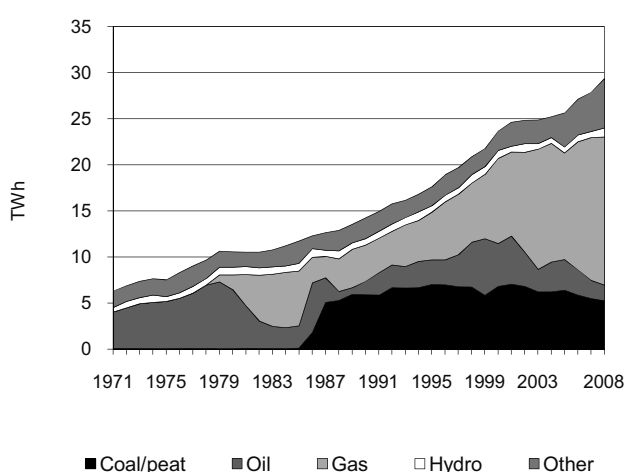
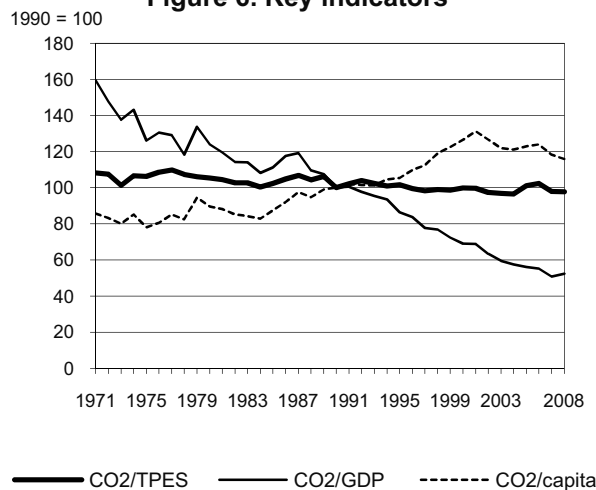


Figure 6. Key indicators



Ireland

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	29.81	32.29	40.86	43.39	44.87	43.82	43.75	46.7%
CO ₂ Reference Approach (Mt of CO ₂)	31.40	32.69	40.53	41.60	41.63	42.89	42.17	34.3%
TPES (PJ)	418	445	574	602	614	628	627	50.0%
TPES (Mtoe)	9.99	10.63	13.70	14.39	14.68	15.00	14.98	50.0%
GDP (billion 2000 USD)	48.66	61.03	96.58	126.06	132.81	140.81	136.54	180.6%
GDP PPP (billion 2000 USD)	54.91	68.87	108.98	142.24	149.86	158.89	154.07	180.6%
Population (millions)	3.51	3.60	3.80	4.15	4.25	4.36	4.44	26.7%
CO ₂ / TPES (t CO ₂ per TJ)	71.3	72.5	71.2	72.0	73.0	69.8	69.8	-2.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.61	0.53	0.42	0.34	0.34	0.31	0.32	-47.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.54	0.47	0.37	0.31	0.30	0.28	0.28	-47.7%
CO ₂ / population (t CO ₂ per capita)	8.50	8.97	10.75	10.46	10.55	10.06	9.85	15.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	9.07	24.25	10.42	-	43.75	46.7%
Main activity producer elec. and heat	6.56	1.09	6.01	-	13.66	31.5%
Unallocated autoproducers	0.05	0.02	0.54	-	0.61	334.5%
Other energy industries	0.11	0.37	-	-	0.48	116.7%
Manufacturing industries and construction	0.49	3.16	1.39	-	5.04	7.0%
Transport	-	13.40	-	-	13.40	172.9%
<i>of which: road</i>	-	13.02	-	-	13.02	184.8%
Other	1.87	6.21	2.48	-	10.56	11.8%
<i>of which: residential</i>	1.77	3.73	1.56	-	7.05	7.3%
Reference Approach	9.64	22.06	10.47	-	42.17	34.3%
Diff. due to losses and/or transformation	0.18	0.35	0.15	-	0.68	
Statistical differences	0.39	- 2.55	- 0.10	-	- 2.26	
<i>Memo: international marine bunkers</i>	-	0.27	-	-	0.27	377.6%
<i>Memo: international aviation bunkers</i>	-	2.69	-	-	2.69	161.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	13.02	184.8%	19.7	19.7
Main activity prod. elec. and heat - coal/peat	6.56	-11.6%	9.9	29.6
Main activity prod. elec. and heat - gas	6.01	214.9%	9.1	38.7
Residential - oil	3.73	222.7%	5.6	44.3
Manufacturing industries - oil	3.16	42.2%	4.8	49.1
Non-specified other - oil	2.49	-3.9%	3.8	52.8
Residential - coal/peat	1.77	-65.7%	2.7	55.5
Residential - gas	1.56	470.4%	2.4	57.9
Manufacturing industries - gas	1.39	-7.8%	2.1	60.0
Main activity prod. elec. and heat - oil	1.09	2.9%	1.6	61.6
Non-specified other - gas	0.92	319.3%	1.4	63.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>43.75</i>	<i>46.7%</i>	<i>66.1</i>	<i>66.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Israel

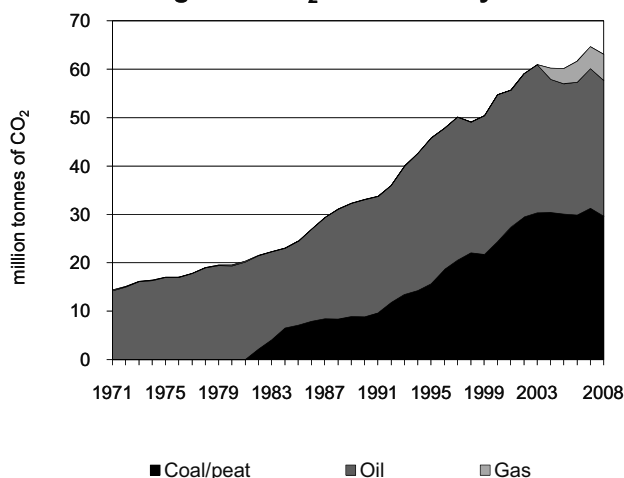
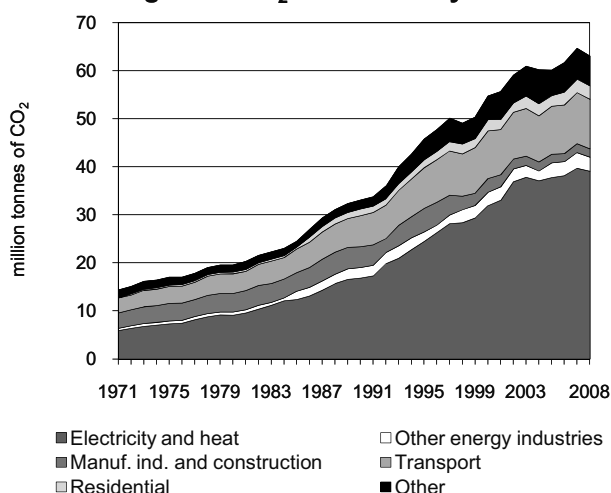
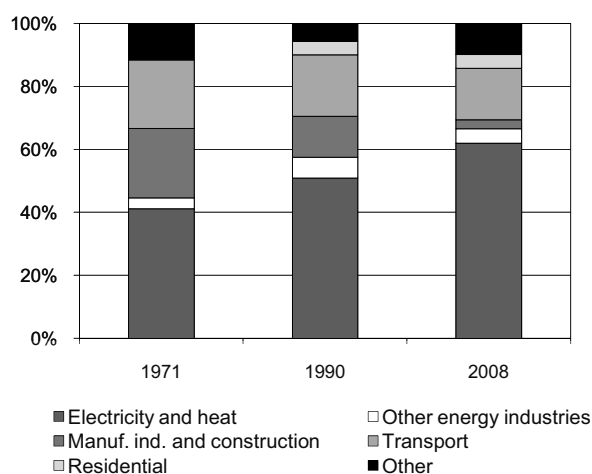
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

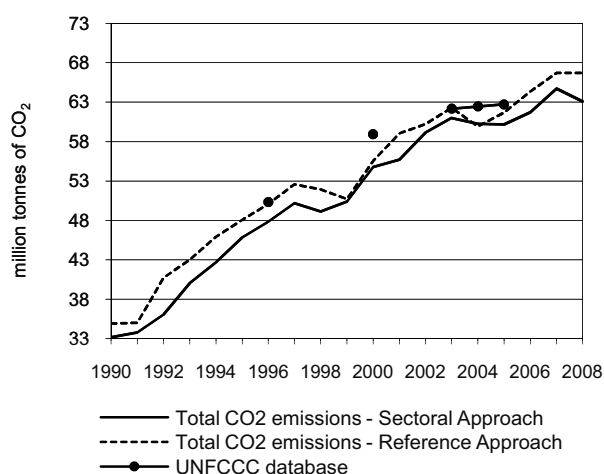


Figure 5. Electricity generation by fuel

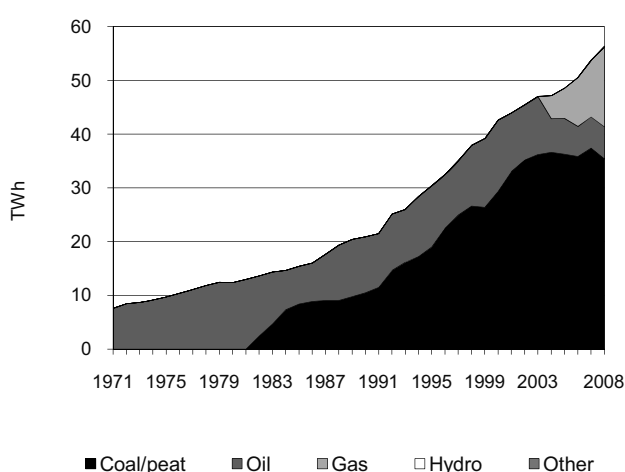
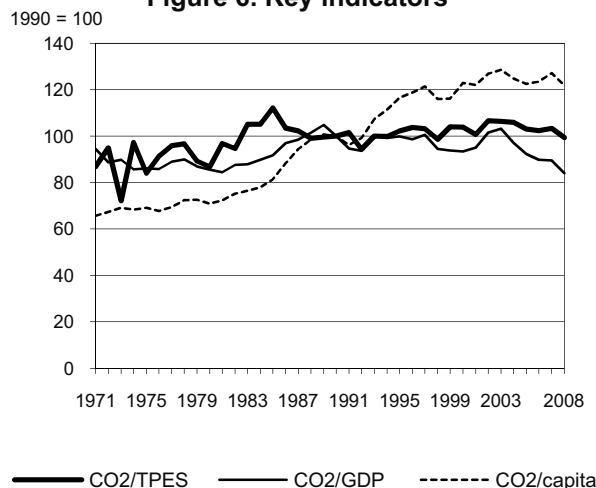


Figure 6. Key indicators



Israel

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	33.14	45.83	54.76	60.19	61.72	64.71	63.12	90.4%
CO ₂ Reference Approach (Mt of CO ₂)	34.89	48.09	55.54	61.67	64.36	66.70	66.70	91.2%
TPES (PJ)	480	650	764	847	874	908	921	91.8%
TPES (Mtoe)	11.48	15.52	18.25	20.24	20.88	21.69	22.01	91.8%
GDP (billion 2000 USD)	70.50	97.61	124.75	138.76	146.09	153.69	159.84	126.7%
GDP PPP (billion 2000 USD)	83.54	115.65	147.81	164.41	173.10	182.11	189.39	126.7%
Population (millions)	4.68	5.55	6.29	6.93	7.05	7.18	7.31	56.3%
CO ₂ / TPES (t CO ₂ per TJ)	69.0	70.5	71.7	71.0	70.6	71.2	68.5	-0.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.47	0.47	0.44	0.43	0.42	0.42	0.39	-16.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.40	0.40	0.37	0.37	0.36	0.36	0.33	-16.0%
CO ₂ / population (t CO ₂ per capita)	7.09	8.26	8.71	8.69	8.75	9.01	8.63	21.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	29.62	28.09	5.41	-	63.12	90.4%
Main activity producer elec. and heat	29.49	3.48	5.15	-	38.12	132.0%
Unallocated autoproducers	0.13	0.73	0.13	-	1.00	118.6%
Other energy industries	-	2.80	0.12	-	2.92	33.1%
Manufacturing industries and construction	-	1.75	-	-	1.75	-59.3%
Transport	-	10.33	-	-	10.33	59.5%
<i>of which: road</i>	-	10.33	-	-	10.33	60.9%
Other	-	9.00	-	-	9.00	173.3%
<i>of which: residential</i>	-	2.77	-	-	2.77	97.7%
Reference Approach	30.25	30.91	5.54	-	66.70	91.2%
Diff. due to losses and/or transformation	-	0.59	-	-	0.59	
Statistical differences	0.62	2.24	0.13	-	2.99	
<i>Memo: international marine bunkers</i>	-	0.83	-	-	0.83	119.1%
<i>Memo: international aviation bunkers</i>	-	1.95	-	-	1.95	24.5%

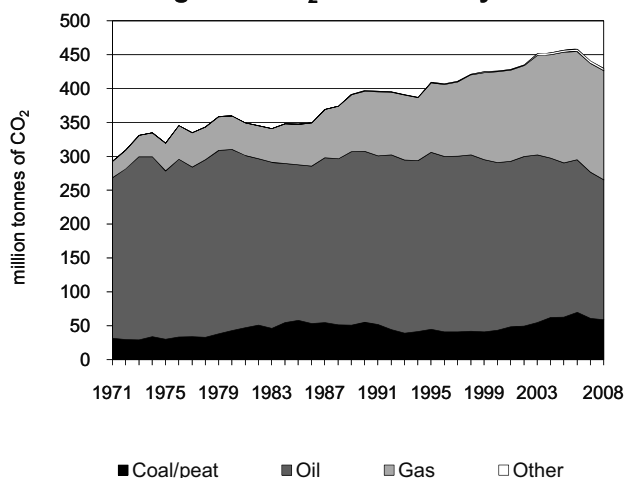
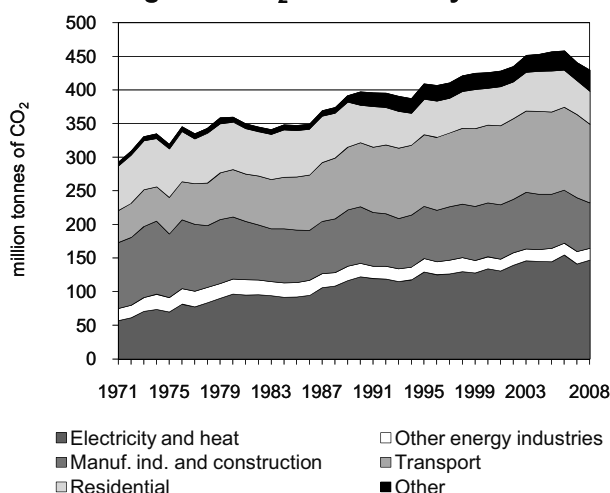
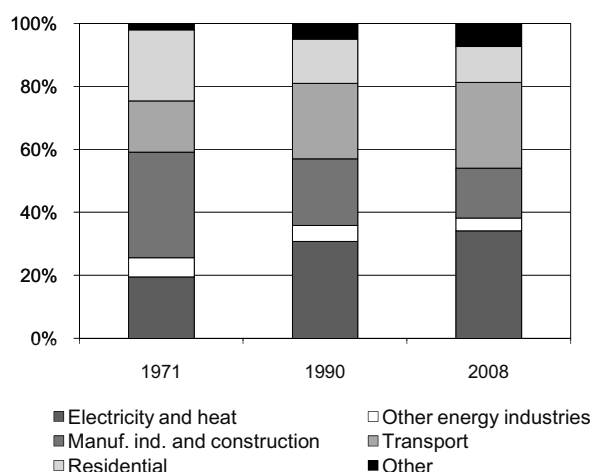
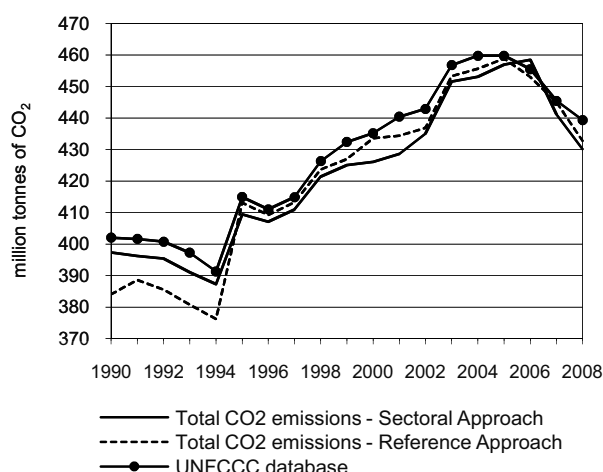
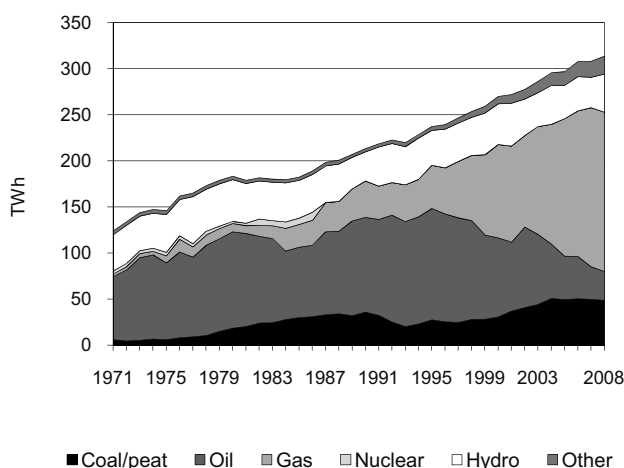
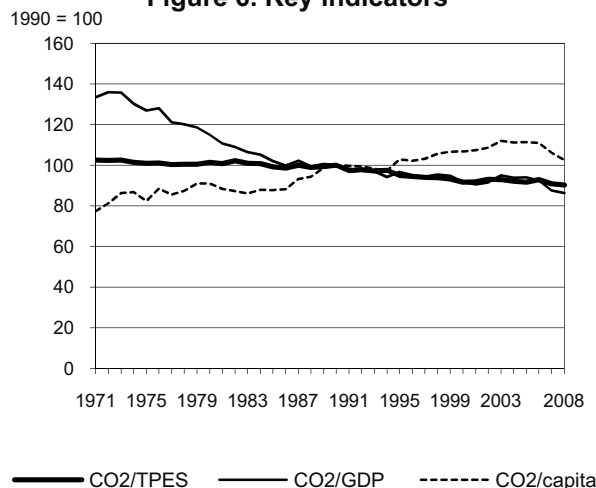
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	29.49	233.7%	40.0	40.0
Road - oil	10.33	60.9%	14.0	54.1
Non-specified other - oil	6.24	229.1%	8.5	62.5
Main activity prod. elec. and heat - gas	5.15	x	7.0	69.5
Main activity prod. elec. and heat - oil	3.48	-54.2%	4.7	74.2
Other energy industries - oil	2.80	27.5%	3.8	78.0
Residential - oil	2.77	97.7%	3.8	81.8
Manufacturing industries - oil	1.75	-58.4%	2.4	84.2
Unallocated autoproducers - oil	0.73	60.9%	1.0	85.2
Unallocated autoproducers - gas	0.13	x	0.2	85.3
Unallocated autoproducers - coal/peat	0.13	x	0.2	85.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>63.12</i>	<i>90.4%</i>	<i>85.7</i>	<i>85.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Italy

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Italy

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	397.36	409.41	426.04	456.96	458.43	441.09	430.10	8.2%
CO ₂ Reference Approach (Mt of CO ₂)	384.05	413.04	433.61	458.82	452.99	444.95	432.71	12.7%
TPES (PJ)	6 136	6 662	7 181	7 698	7 624	7 498	7 370	20.1%
TPES (Mtoe)	146.56	159.13	171.52	183.87	182.10	179.09	176.03	20.1%
GDP (billion 2000 USD)	937.60	998.73	1 097.34	1 146.84	1 170.19	1 188.49	1 176.14	25.4%
GDP PPP (billion 2000 USD)	1 245.38	1 326.59	1 457.57	1 523.32	1 554.34	1 578.64	1 562.23	25.4%
Population (millions)	56.72	56.84	56.94	58.61	58.94	59.38	59.89	5.6%
CO ₂ / TPES (t CO ₂ per TJ)	64.8	61.4	59.3	59.4	60.1	58.8	58.4	-9.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.42	0.41	0.39	0.40	0.39	0.37	0.37	-13.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.32	0.31	0.29	0.30	0.29	0.28	0.28	-13.7%
CO ₂ / population (t CO ₂ per capita)	7.01	7.20	7.48	7.80	7.78	7.43	7.18	2.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	58.94	206.68	161.07	3.42	430.10	8.2%
Main activity producer elec. and heat	49.81	13.89	64.26	2.83	130.80	22.2%
Unallocated autoproducers	0.05	7.62	8.11	0.30	16.09	4.0%
Other energy industries	0.19	15.40	2.04	-	17.63	-12.1%
Manufacturing industries and construction	8.26	31.95	27.49	0.28	67.98	-19.0%
Transport	-	115.73	1.28	-	117.01	22.6%
<i>of which: road</i>	-	108.36	1.28	-	109.65	19.9%
Other	0.62	22.09	57.88	-	80.59	6.8%
<i>of which: residential</i>	0.02	11.44	37.42	-	48.88	-12.3%
Reference Approach	62.33	205.08	161.89	3.42	432.71	12.7%
Diff. due to losses and/or transformation	1.74	- 4.50	0.82	-	- 1.94	
Statistical differences	1.65	2.90	0.00	-	4.55	
<i>Memo: international marine bunkers</i>	-	7.98	-	-	7.98	-4.7%
<i>Memo: international aviation bunkers</i>	-	9.76	-	-	9.76	117.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	108.36	19.1%	20.4	20.4
Main activity prod. elec. and heat - gas	64.26	299.8%	12.1	32.4
Main activity prod. elec. and heat - coal/peat	49.81	80.0%	9.4	41.8
Residential - gas	37.42	41.6%	7.0	48.8
Manufacturing industries - oil	31.95	-9.6%	6.0	54.8
Manufacturing industries - gas	27.49	-16.5%	5.2	60.0
Non-specified other - gas	20.47	107.0%	3.8	63.8
Other energy industries - oil	15.40	5.0%	2.9	66.7
Main activity prod. elec. and heat - oil	13.89	-78.0%	2.6	69.3
Residential - oil	11.44	-59.8%	2.1	71.5
Non-specified other - oil	10.64	8.6%	2.0	73.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>430.10</i>	<i>8.2%</i>	<i>80.8</i>	<i>80.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Jamaica

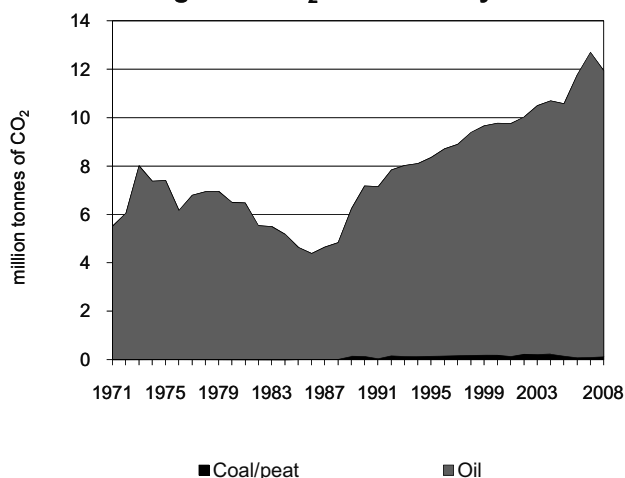
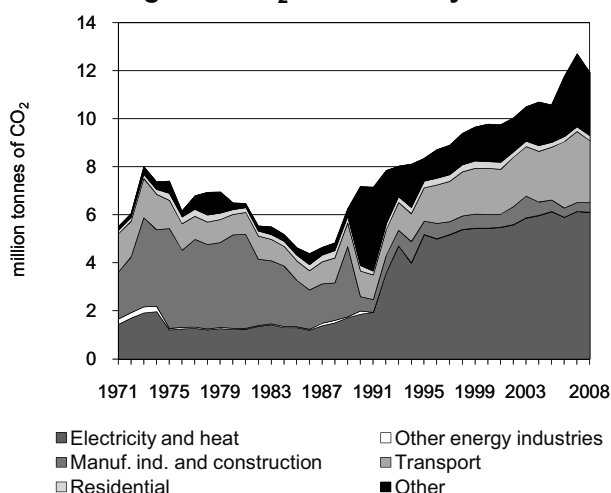
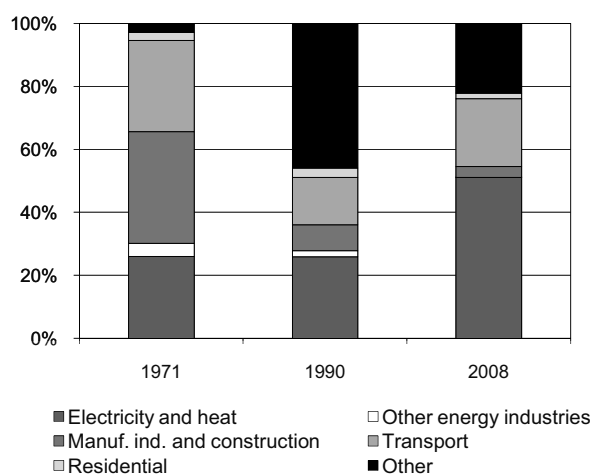
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

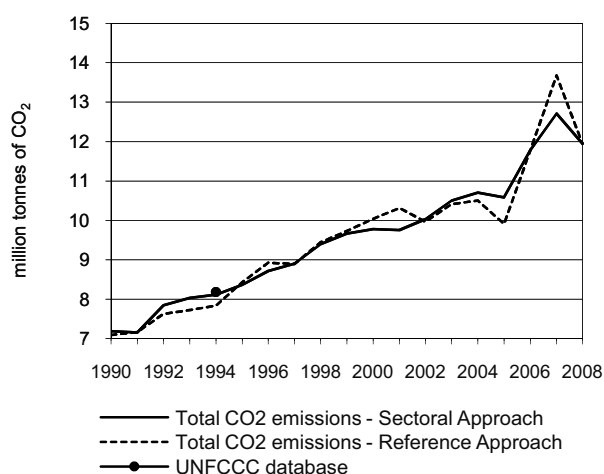


Figure 5. Electricity generation by fuel

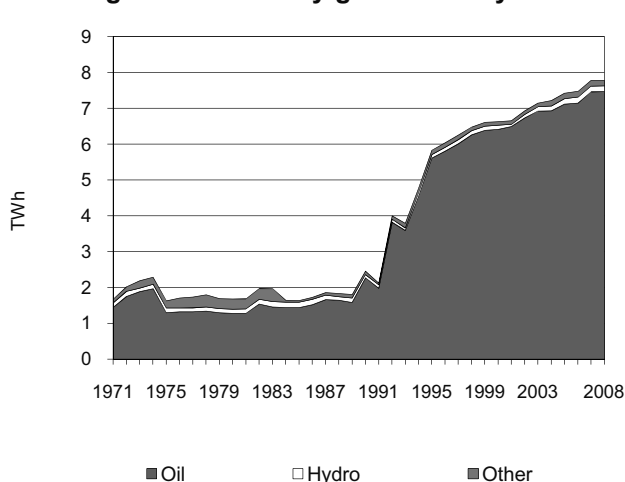
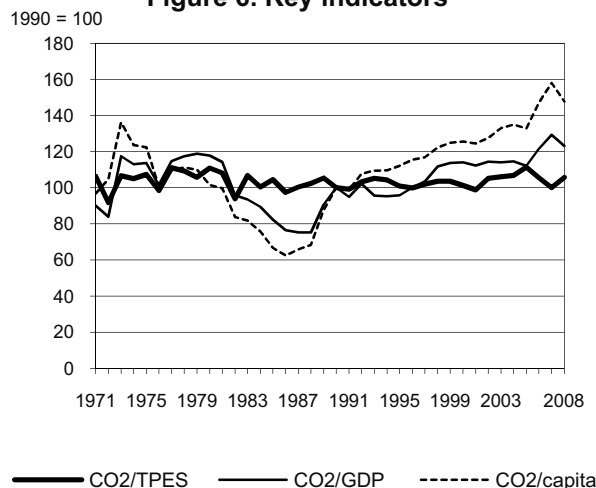


Figure 6. Key indicators



Jamaica

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	7.19	8.36	9.78	10.59	11.77	12.71	11.95	66.3%
CO ₂ Reference Approach (Mt of CO ₂)	7.09	8.43	10.04	9.91	11.78	13.68	11.95	68.5%
TPES (PJ)	117	135	157	155	181	206	184	57.3%
TPES (Mtoe)	2.79	3.21	3.75	3.69	4.33	4.93	4.39	57.3%
GDP (billion 2000 USD)	7.55	9.16	9.01	9.92	10.19	10.33	10.20	35.1%
GDP PPP (billion 2000 USD)	8.76	10.63	10.45	11.51	11.82	11.99	11.83	35.1%
Population (millions)	2.39	2.48	2.59	2.65	2.66	2.68	2.69	12.5%
CO ₂ / TPES (t CO ₂ per TJ)	61.5	62.2	62.3	68.5	65.0	61.6	65.0	5.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.95	0.91	1.09	1.07	1.16	1.23	1.17	23.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.82	0.79	0.94	0.92	1.00	1.06	1.01	23.1%
CO ₂ / population (t CO ₂ per capita)	3.01	3.37	3.78	4.00	4.42	4.75	4.44	47.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.12	11.83	-	-	11.95	66.3%
Main activity producer elec. and heat	-	2.86	-	-	2.86	53.7%
Unallocated autoproducers	-	3.24	-	-	3.24	x
Other energy industries	-	0.01	-	-	0.01	-95.6%
Manufacturing industries and construction	0.12	0.28	-	-	0.40	-32.1%
Transport	-	2.58	-	-	2.58	139.7%
<i>of which: road</i>	-	1.57	-	-	1.57	116.5%
Other	-	2.85	-	-	2.85	-18.9%
<i>of which: residential</i>	-	0.20	-	-	0.20	-6.3%
Reference Approach	0.12	11.83	-	-	11.95	68.5%
Diff. due to losses and/or transformation	-	0.02	-	-	0.02	
Statistical differences	-	- 0.02	-	-	- 0.02	
<i>Memo: international marine bunkers</i>	-	0.09	-	-	0.09	-
<i>Memo: international aviation bunkers</i>	-	0.63	-	-	0.63	35.4%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Unallocated autoproducers - oil	3.24	x	22.1	22.1
Main activity prod. elec. and heat - oil	2.86	53.7%	19.5	41.6
Non-specified other - oil	2.65	-19.7%	18.1	59.6
Road - oil	1.57	116.5%	10.7	70.3
Other transport - oil	1.01	187.6%	6.9	77.2
Manufacturing industries - oil	0.28	-38.9%	1.9	79.1
Residential - oil	0.20	-6.3%	1.4	80.5
Manufacturing industries - coal/peat	0.12	-7.7%	0.8	81.3
Other energy industries - oil	0.01	-95.6%	0.0	81.4
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>11.95</i>	<i>66.3%</i>	<i>81.4</i>	<i>81.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Japan

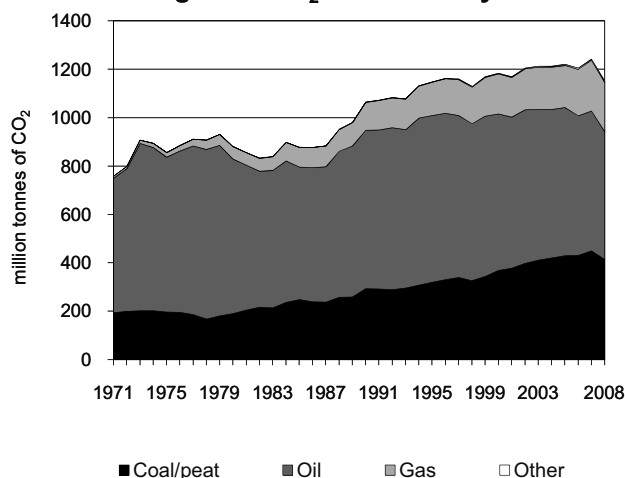
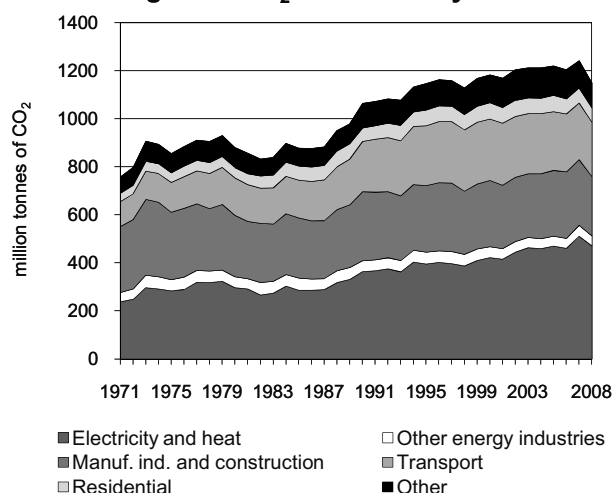
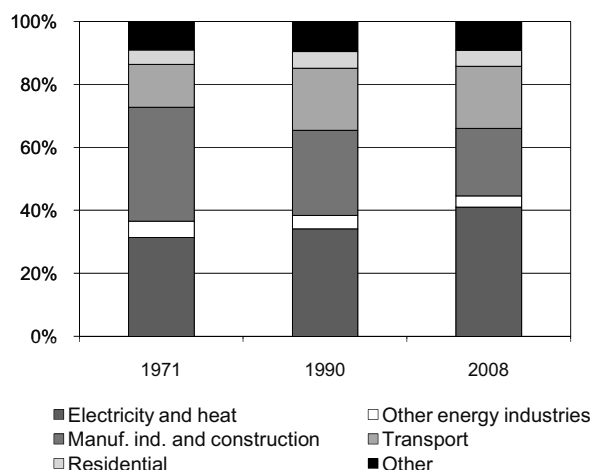
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

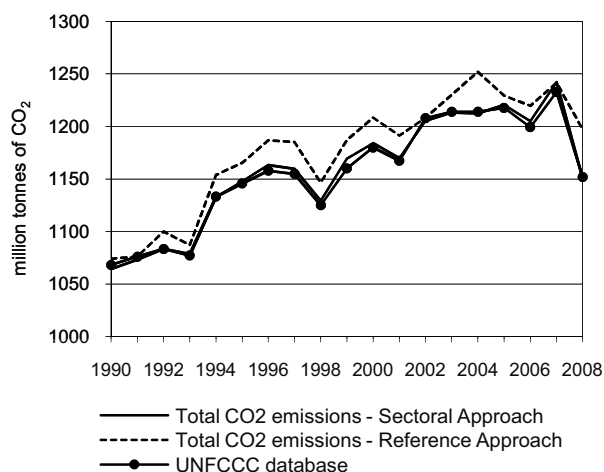


Figure 5. Electricity generation by fuel

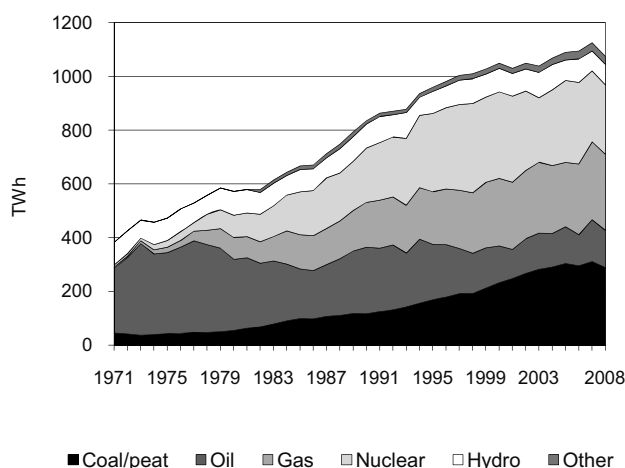
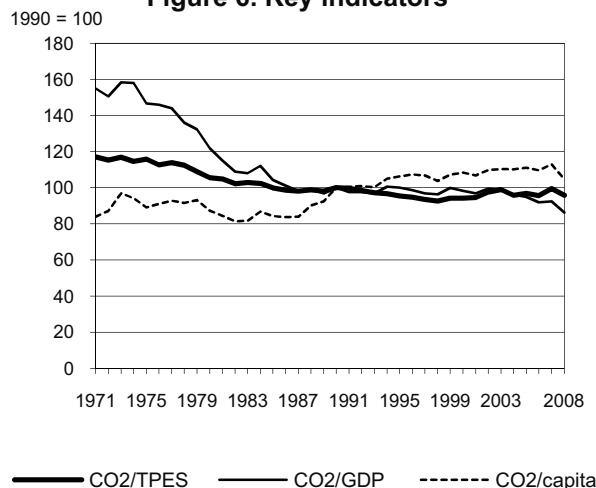


Figure 6. Key indicators



Japan *

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1 064.37	1 147.92	1 184.03	1 220.67	1 205.04	1 242.33	1 151.14	8.2%
CO ₂ Reference Approach (Mt of CO ₂)	1 074.10	1 165.56	1 208.42	1 229.54	1 219.63	1 241.63	1 197.80	11.5%
TPES (PJ)	18 393	20 777	21 727	21 796	21 765	21 576	20 760	12.9%
TPES (Mtoe)	439.32	496.26	518.95	520.59	519.84	515.33	495.84	12.9%
GDP (billion 2000 USD)	4 122.36	4 445.39	4 667.47	4 979.57	5 081.13	5 202.72	5 166.27	25.3%
GDP PPP (billion 2000 USD)	2 870.68	3 095.63	3 250.28	3 467.62	3 538.34	3 623.02	3 597.63	25.3%
Population (millions)	123.61	125.57	126.93	127.77	127.77	127.77	127.69	3.3%
CO ₂ / TPES (t CO ₂ per TJ)	57.9	55.2	54.5	56.0	55.4	57.6	55.5	-4.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.26	0.25	0.25	0.24	0.24	0.22	-13.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.37	0.37	0.36	0.35	0.34	0.34	0.32	-13.7%
CO ₂ / population (t CO ₂ per capita)	8.61	9.14	9.33	9.55	9.43	9.72	9.02	4.7%

Ratios are based on the Sectoral Approach.

* Please see the note in Chapter 1 on the revisions provided by the Japanese Administration.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach	413.82	528.76	204.13	4.43	1 151.14	8.2%
Main activity producer elec. and heat	217.23	63.32	121.37	1.22	403.14	30.9%
Unallocated autoproducers	45.42	16.57	4.69	2.34	69.01	23.0%
Other energy industries	16.45	22.62	2.15	-	41.22	-8.3%
Manufacturing industries and construction	132.65	95.92	18.02	0.87	247.46	-14.0%
Transport	-	226.23	-	-	226.23	7.9%
<i>of which: road</i>	-	202.57	-	-	202.57	8.4%
Other	2.06	104.09	57.92	-	164.08	3.9%
<i>of which: residential</i>	-	37.57	21.19	-	58.77	5.3%
Reference Approach	439.81	558.17	195.38	4.43	1 197.80	11.5%
Diff. due to losses and/or transformation	2.30	13.85	- 2.36	-	13.78	
Statistical differences	23.70	15.57	- 6.40	-	32.87	
<i>Memo: international marine bunkers</i>	-	16.97	-	-	16.97	-3.9%
<i>Memo: international aviation bunkers</i>	-	17.55	-	-	17.55	31.8%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	217.23	120.9%	17.0	17.0
Road - oil	202.57	8.4%	15.8	32.8
Manufacturing industries - coal/peat	132.65	-8.9%	10.4	43.1
Main activity prod. elec. and heat - gas	121.37	57.0%	9.5	52.6
Manufacturing industries - oil	95.92	-27.9%	7.5	60.1
Non-specified other - oil	66.52	-25.5%	5.2	65.3
Main activity prod. elec. and heat - oil	63.32	-52.0%	4.9	70.2
Unallocated autoproducers - coal/peat	45.42	50.9%	3.5	73.8
Residential - oil	37.57	-2.1%	2.9	76.7
Non-specified other - gas	36.73	304.1%	2.9	79.6
Other transport - oil	23.66	3.8%	1.8	81.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>1151.14</i>	<i>8.2%</i>	<i>89.9</i>	<i>89.9</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Jordan

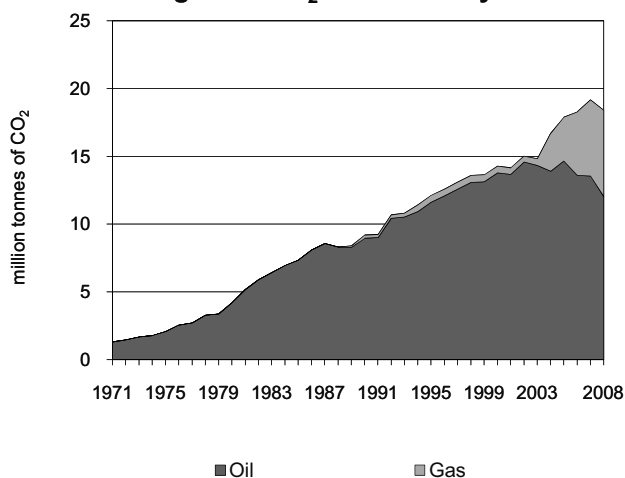
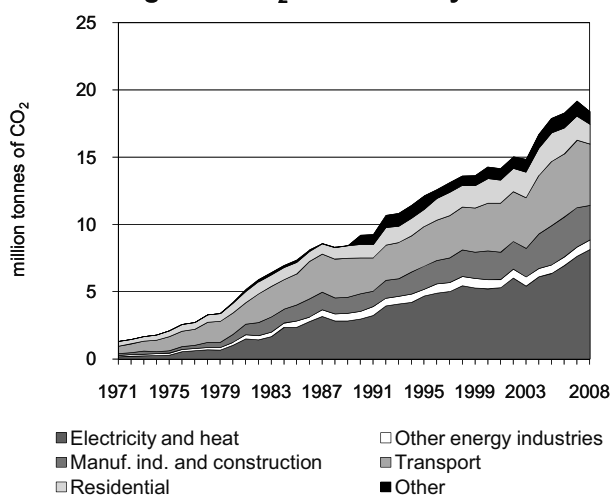
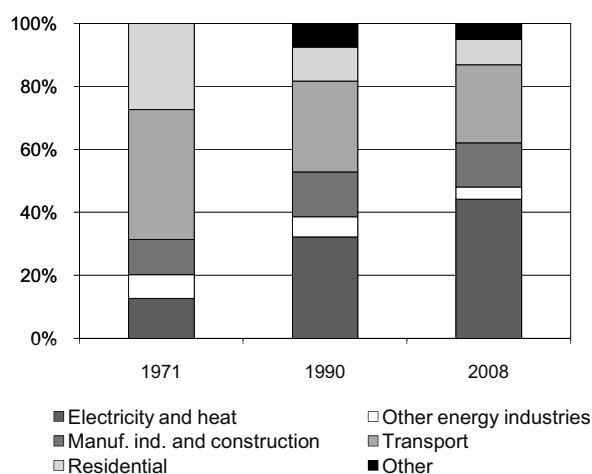
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

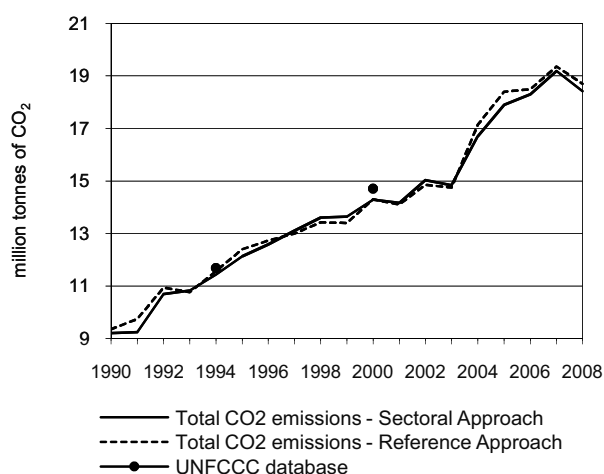


Figure 5. Electricity generation by fuel

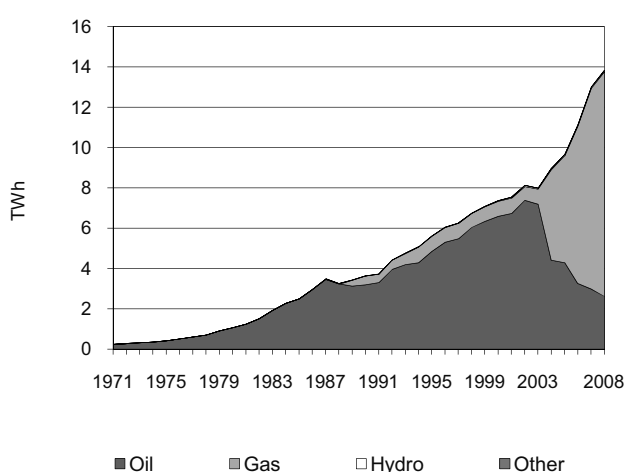
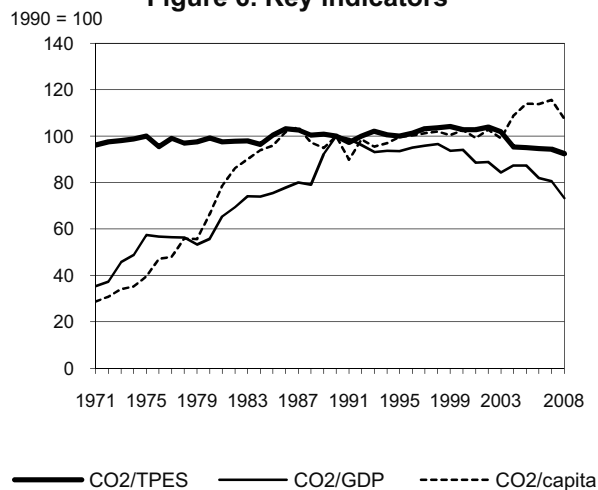


Figure 6. Key indicators



Jordan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	9.20	12.13	14.29	17.90	18.29	19.18	18.42	100.1%
CO ₂ Reference Approach (Mt of CO ₂)	9.36	12.40	14.30	18.40	18.49	19.36	18.70	99.8%
TPES (PJ)	136	180	206	279	287	301	296	116.6%
TPES (Mtoe)	3.26	4.29	4.93	6.67	6.84	7.20	7.06	116.6%
GDP (billion 2000 USD)	5.13	7.23	8.46	11.41	12.44	13.26	14.01	173.1%
GDP PPP (billion 2000 USD)	12.21	17.21	20.15	27.17	29.62	31.57	33.35	173.1%
Population (millions)	3.17	4.20	4.80	5.41	5.54	5.72	5.91	86.3%
CO ₂ / TPES (t CO ₂ per TJ)	67.4	67.5	69.3	64.1	63.8	63.6	62.3	-7.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.79	1.68	1.69	1.57	1.47	1.45	1.31	-26.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.75	0.71	0.71	0.66	0.62	0.61	0.55	-26.7%
CO ₂ / population (t CO ₂ per capita)	2.90	2.89	2.98	3.31	3.30	3.35	3.12	7.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	12.05	6.37	-	18.42	100.1%
Main activity producer elec. and heat	-	1.50	6.37	-	7.86	195.4%
Unallocated autoproducers	-	0.29	-	-	0.29	-5.2%
Other energy industries	-	0.70	-	-	0.70	19.1%
Manufacturing industries and construction	-	2.59	-	-	2.59	97.6%
Transport	-	4.56	-	-	4.56	71.7%
<i>of which: road</i>	-	4.53	-	-	4.53	70.4%
Other	-	2.42	-	-	2.42	43.6%
<i>of which: residential</i>	-	1.48	-	-	1.48	49.1%
Reference Approach	-	12.33	6.37	-	18.70	99.8%
Diff. due to losses and/or transformation	-	0.24	-	-	0.24	
Statistical differences	-	0.04	-	-	0.04	
<i>Memo: international marine bunkers</i>	-	0.10	-	-	0.10	..
<i>Memo: international aviation bunkers</i>	-	0.93	-	-	0.93	32.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	6.37	+	27.5	27.5
Road - oil	4.53	70.4%	19.5	47.0
Manufacturing industries - oil	2.59	97.6%	11.2	58.2
Main activity prod. elec. and heat - oil	1.50	-38.3%	6.5	64.7
Residential - oil	1.48	49.1%	6.4	71.1
Non-specified other - oil	0.94	35.7%	4.0	75.1
Other energy industries - oil	0.70	19.1%	3.0	78.1
Unallocated autoproducers - oil	0.29	-5.2%	1.2	79.4
Other transport - oil	0.03	x	0.1	79.5
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>18.42</i>	<i>100.1%</i>	<i>79.5</i>	<i>79.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Kazakhstan

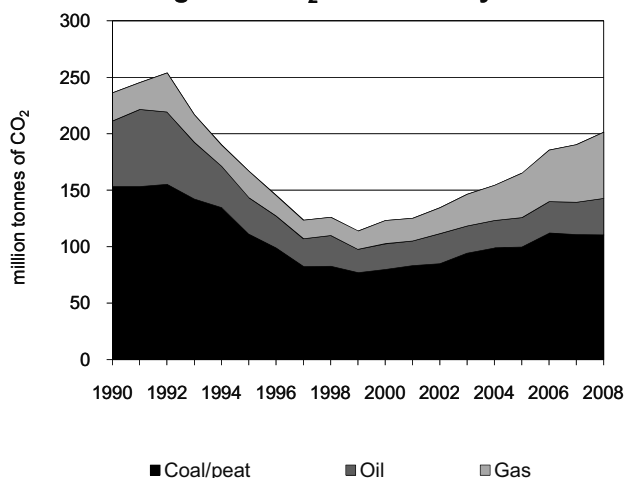
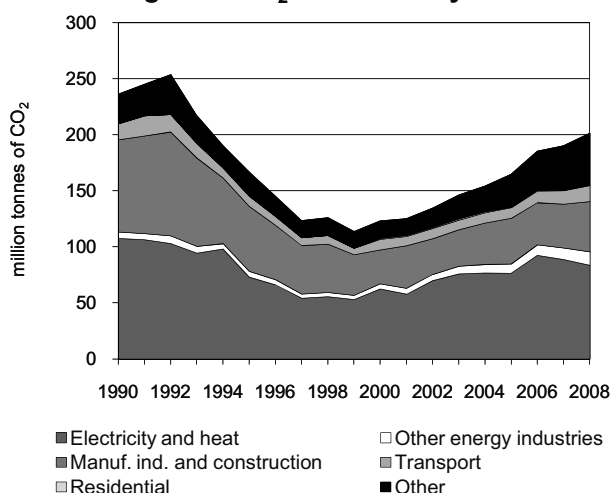
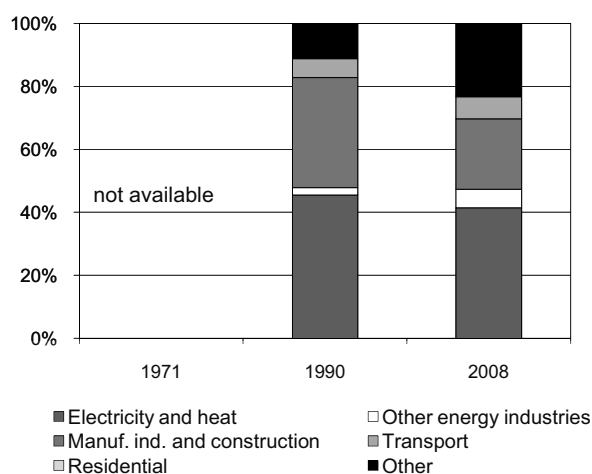
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

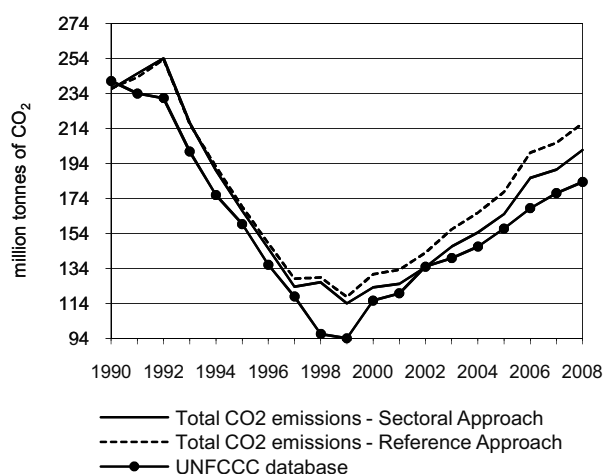


Figure 5. Electricity generation by fuel

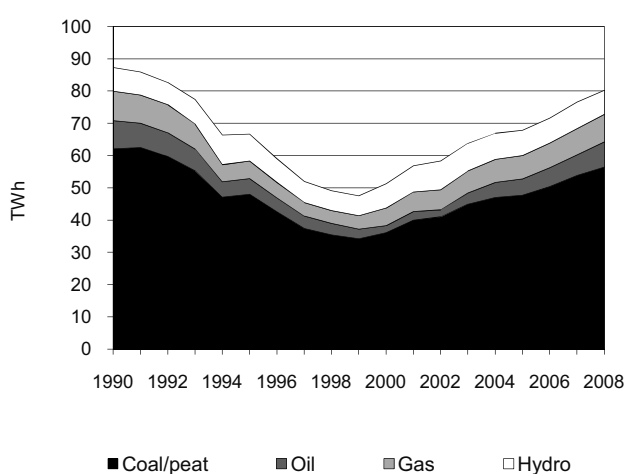
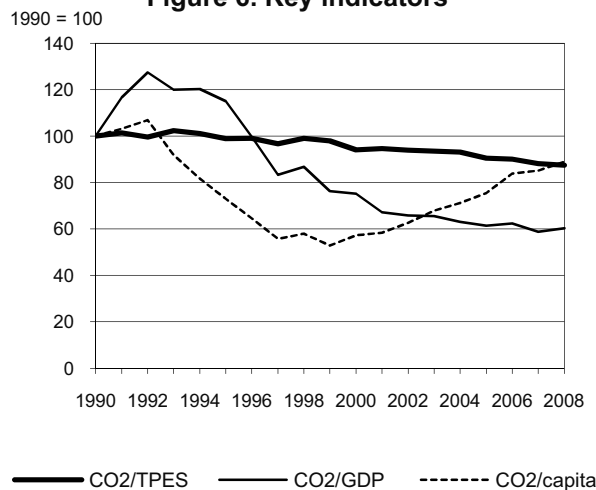


Figure 6. Key indicators



Kazakhstan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	236.41	167.02	123.33	165.20	185.75	190.45	201.63	-14.7%
CO ₂ Reference Approach (Mt of CO ₂)	236.96	169.27	130.73	177.69	200.23	205.83	216.77	-8.5%
TPES (PJ)	3 046	2 176	1 688	2 352	2 657	2 783	2 969	-2.5%
TPES (Mtoe)	72.75	51.98	40.31	56.17	63.47	66.48	70.92	-2.5%
GDP (billion 2000 USD)	26.35	16.18	18.29	29.96	33.16	36.11	37.27	41.4%
GDP PPP (billion 2000 USD)	93.16	57.20	64.67	105.91	117.25	127.68	131.77	41.4%
Population (millions)	16.35	15.82	14.88	15.15	15.31	15.48	15.68	-4.1%
CO ₂ / TPES (t CO ₂ per TJ)	77.6	76.7	73.1	70.2	69.9	68.4	67.9	-12.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	8.97	10.32	6.74	5.51	5.60	5.27	5.41	-39.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.54	2.92	1.91	1.56	1.58	1.49	1.53	-39.7%
CO ₂ / population (t CO ₂ per capita)	14.46	10.56	8.29	10.91	12.13	12.30	12.86	-11.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	110.45	32.55	58.63	-	201.63	-14.7%
Main activity producer elec. and heat	75.75	2.80	5.02	-	83.56	-22.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	1.00	11.01	-	12.01	113.2%
Manufacturing industries and construction	33.59	9.51	1.82	-	44.92	-45.5%
Transport	-	14.20	-	-	14.20	-0.5%
<i>of which: road</i>	-	12.53	-	-	12.53	4.8%
Other	1.11	5.04	40.77	-	46.93	77.5%
<i>of which: residential</i>	0.00	0.59	-	-	0.59	x
Reference Approach	116.83	35.59	64.36	-	216.77	-8.5%
Diff. due to losses and/or transformation	6.71	3.34	1.93	-	11.98	
Statistical differences	- 0.33	- 0.31	3.80	-	3.16	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.97	-	-	0.97	-63.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	75.75	-19.0%	26.8	26.8
Non-specified other - gas	40.77	124.5%	14.5	41.3
Manufacturing industries - coal/peat	33.59	-43.8%	11.9	53.2
Road - oil	12.53	4.8%	4.4	57.6
Other energy industries - gas	11.01	247.7%	3.9	61.5
Manufacturing industries - oil	9.51	-58.0%	3.4	64.9
Main activity prod. elec. and heat - gas	5.02	44.1%	1.8	66.7
Non-specified other - oil	4.45	-46.3%	1.6	68.3
Main activity prod. elec. and heat - oil	2.80	-73.7%	1.0	69.3
Manufacturing industries - gas	1.82	x	0.6	69.9
Other transport - oil	1.67	-28.1%	0.6	70.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>201.63</i>	<i>-14.7%</i>	<i>71.5</i>	<i>71.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Kenya

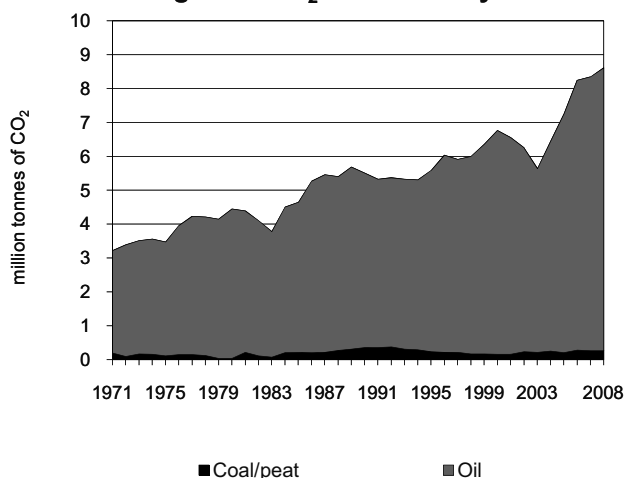
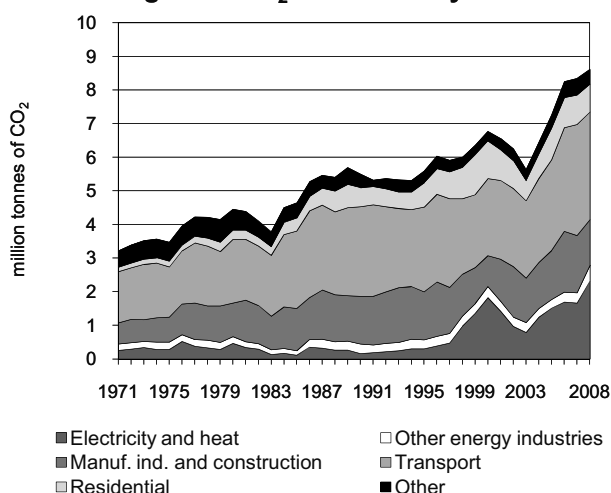
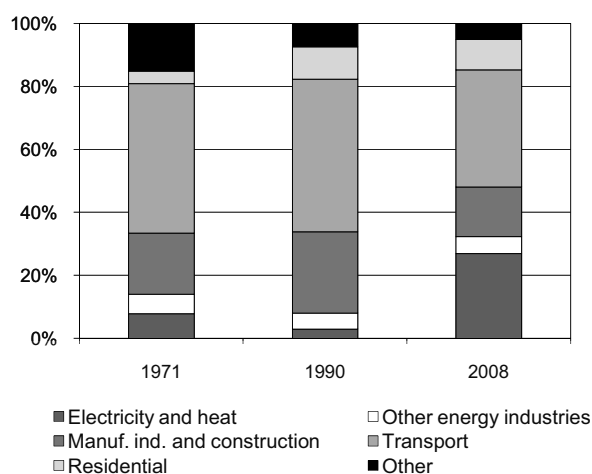
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

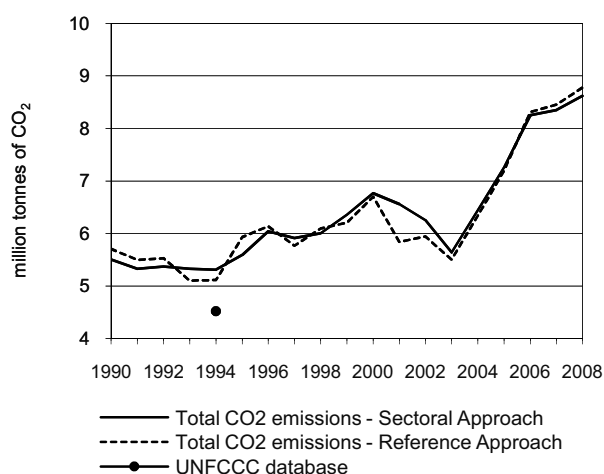


Figure 5. Electricity generation by fuel

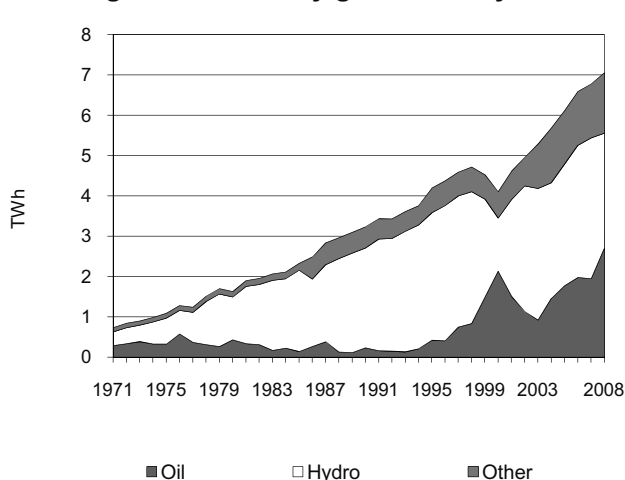
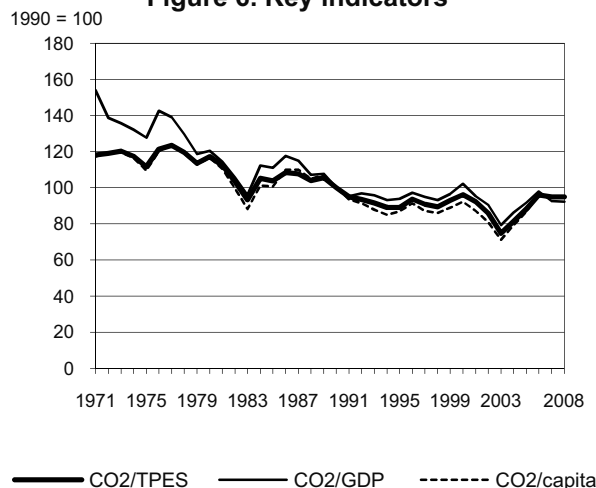


Figure 6. Key indicators



Kenya

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	5.51	5.59	6.77	7.26	8.25	8.35	8.62	56.5%
CO ₂ Reference Approach (Mt of CO ₂)	5.70	5.93	6.70	7.20	8.32	8.46	8.78	53.8%
TPES (PJ)	458	522	585	685	715	732	755	64.7%
TPES (Mtoe)	10.94	12.48	13.98	16.35	17.07	17.49	18.02	64.7%
GDP (billion 2000 USD)	10.54	11.41	12.69	15.16	16.13	17.25	17.87	69.5%
GDP PPP (billion 2000 USD)	26.31	28.47	31.67	37.82	40.24	43.04	44.59	69.5%
Population (millions)	23.45	27.38	31.25	35.60	36.55	37.53	38.53	64.3%
CO ₂ / TPES (t CO ₂ per TJ)	12.0	10.7	11.6	10.6	11.5	11.4	11.4	-5.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.52	0.49	0.53	0.48	0.51	0.48	0.48	-7.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.21	0.20	0.21	0.19	0.21	0.19	0.19	-7.6%
CO ₂ / population (t CO ₂ per capita)	0.23	0.20	0.22	0.20	0.23	0.22	0.22	-4.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.27	8.35	-	-	8.62	56.5%
Main activity producer elec. and heat **	-	2.32	-	-	2.32	+
Unallocated autoproducers **	..	..	..	..	..	..
Other energy industries	-	0.47	-	-	0.47	67.7%
Manufacturing industries and construction	0.27	1.09	-	-	1.36	-4.7%
Transport	-	3.21	-	-	3.21	20.3%
<i>of which: road</i>	-	3.06	-	-	3.06	21.0%
Other	-	1.27	-	-	1.27	30.0%
<i>of which: residential</i>	-	0.83	-	-	0.83	46.3%
Reference Approach	0.37	8.40	-	-	8.78	53.8%
Diff. due to losses and/or transformation	-	0.13	-	-	0.13	
Statistical differences	0.11	- 0.07	-	-	0.03	
<i>Memo: international marine bunkers</i>	-	0.00	-	-	0.00	-99.4%
<i>Memo: international aviation bunkers</i>	-	1.76	-	-	1.76	112.5%

* Other includes industrial waste and non-renewable municipal waste.

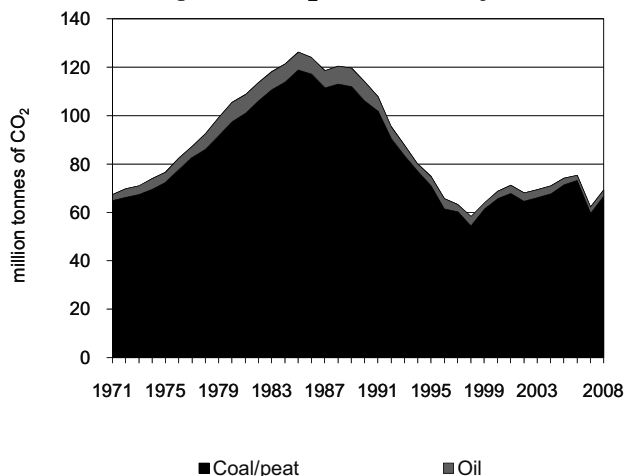
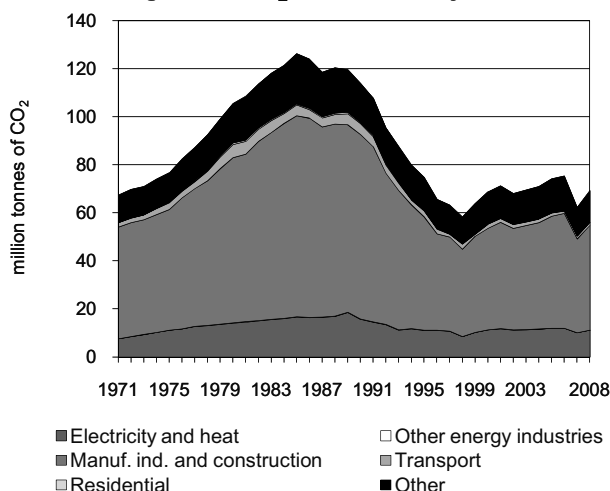
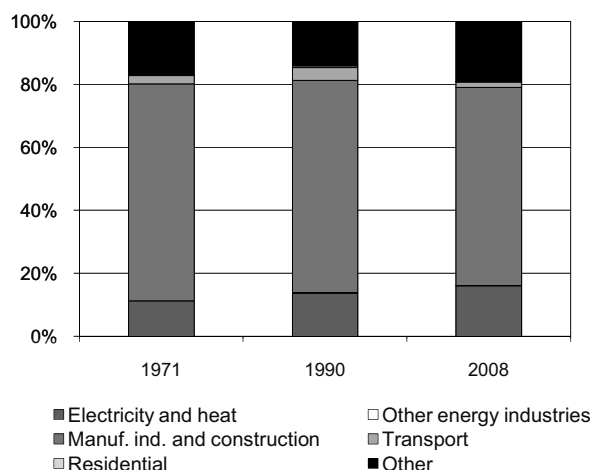
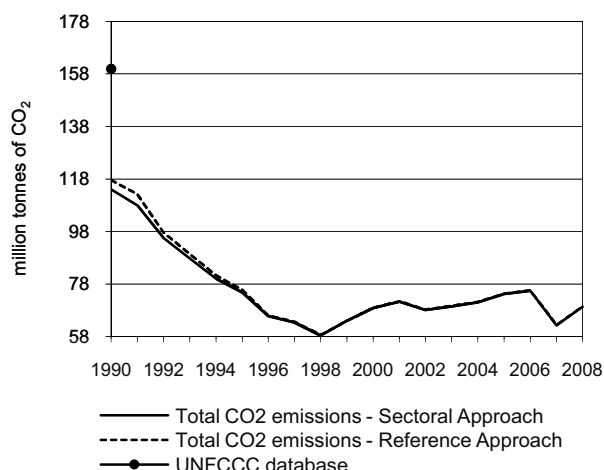
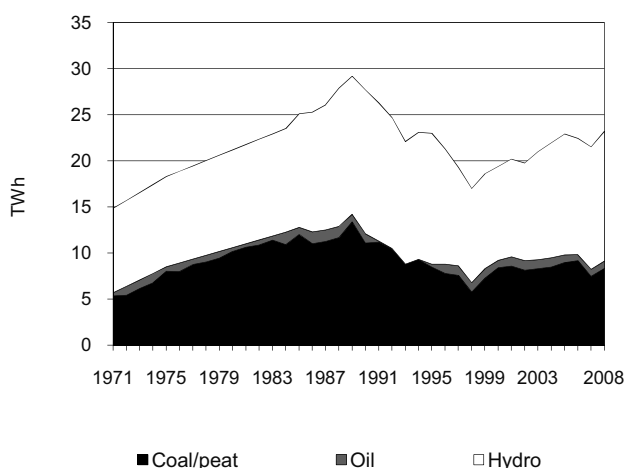
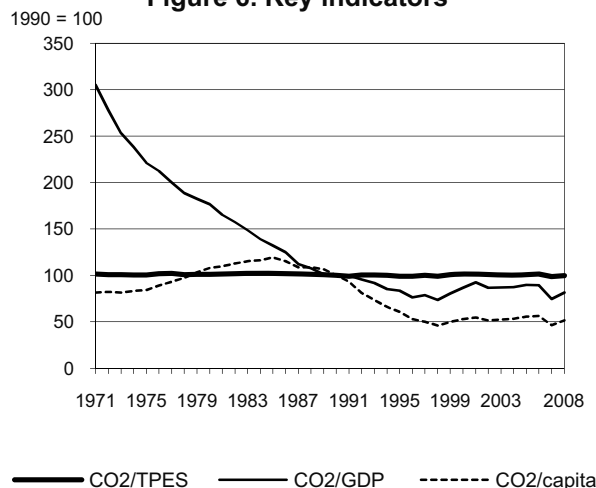
** Emissions from autoproducers in 2008 have been included with main activity producer electricity and heat

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Road - oil	3.06	21.0%	6.8	6.8
Main activity prod. elec. and heat - oil	2.32	+	5.1	11.9
Manufacturing industries - oil	1.09	2.7%	2.4	14.3
Residential - oil	0.83	46.3%	1.8	16.1
Other energy industries - oil	0.47	67.7%	1.0	17.1
Non-specified other - oil	0.44	7.4%	1.0	18.1
Manufacturing industries - coal/peat	0.27	-26.5%	0.6	18.7
Other transport - oil	0.15	7.5%	0.3	19.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.62</i>	<i>56.5%</i>	<i>19.0</i>	<i>19.0</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Democratic People's Republic of Korea

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Democratic People's Republic of Korea

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	114.01	74.86	68.82	74.26	75.43	62.32	69.37	-39.2%
CO ₂ Reference Approach (Mt of CO ₂)	117.57	75.77	68.92	74.38	75.54	62.42	69.47	-40.9%
TPES (PJ)	1 391	920	828	898	907	769	848	-39.0%
TPES (Mtoe)	33.22	21.99	19.78	21.44	21.66	18.38	20.26	-39.0%
GDP (billion 2000 USD)	15.57	12.23	10.85	11.31	11.51	11.38	11.62	-25.4%
GDP PPP (billion 2000 USD)	54.75	43.00	38.17	39.76	40.48	40.03	40.85	-25.4%
Population (millions)	20.14	21.72	22.95	23.62	23.71	23.78	23.86	18.4%
CO ₂ / TPES (t CO ₂ per TJ)	82.0	81.3	83.1	82.7	83.2	81.0	81.8	-0.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	7.32	6.12	6.34	6.57	6.55	5.48	5.97	-18.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.08	1.74	1.80	1.87	1.86	1.56	1.70	-18.5%
CO ₂ / population (t CO ₂ per capita)	5.66	3.45	3.00	3.14	3.18	2.62	2.91	-48.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	66.70	2.67	-	-	69.37	-39.2%
Main activity producer elec. and heat	10.09	1.08	-	-	11.17	-28.7%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	0.04	-	-	0.04	-80.0%
Manufacturing industries and construction	43.38	0.24	-	-	43.62	-43.2%
Transport	-	1.21	-	-	1.21	-74.0%
<i>of which: road</i>	-	1.21	-	-	1.21	-74.0%
Other	13.23	0.10	-	-	13.32	-20.1%
<i>of which: residential</i>	-	0.10	-	-	0.10	-81.8%
Reference Approach	66.77	2.69	-	-	69.47	-40.9%
Diff. due to losses and/or transformation	0.07	0.03	-	-	0.10	
Statistical differences	0.00	-	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	43.38	-42.6%	43.9	43.9
Non-specified other sectors - coal/peat	13.23	-18.1%	13.4	57.3
Main activity prod. elec. and heat - coal/peat	10.09	-29.7%	10.2	67.5
Road - oil	1.21	-74.0%	1.2	68.8
Main activity prod. elec. and heat - oil	1.08	-18.1%	1.1	69.9
Manufacturing industries - oil	0.24	-79.6%	0.2	70.1
Residential - oil	0.10	-81.8%	0.1	70.2
Other energy industries - oil	0.04	-80.0%	0.0	70.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>69.37</i>	<i>-39.2%</i>	<i>70.2</i>	<i>70.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Korea

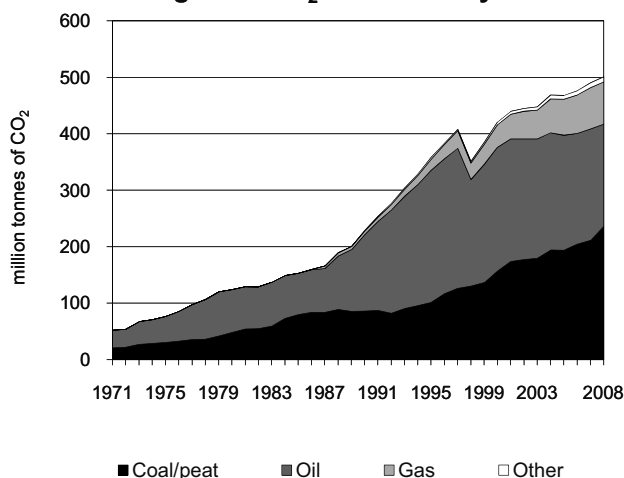
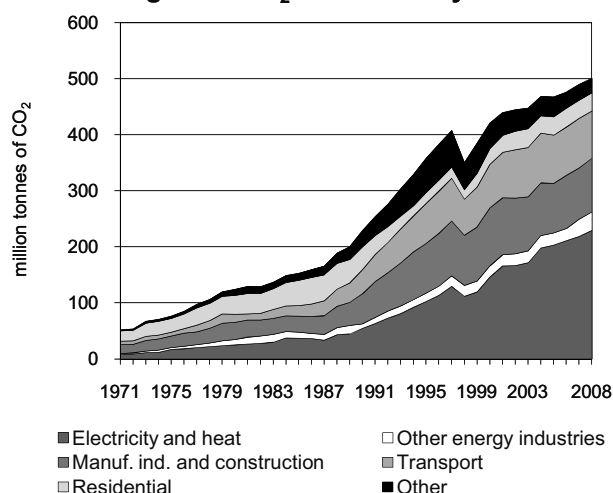
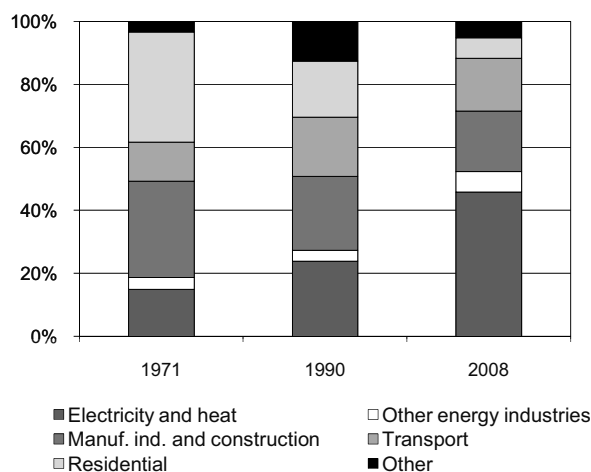
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

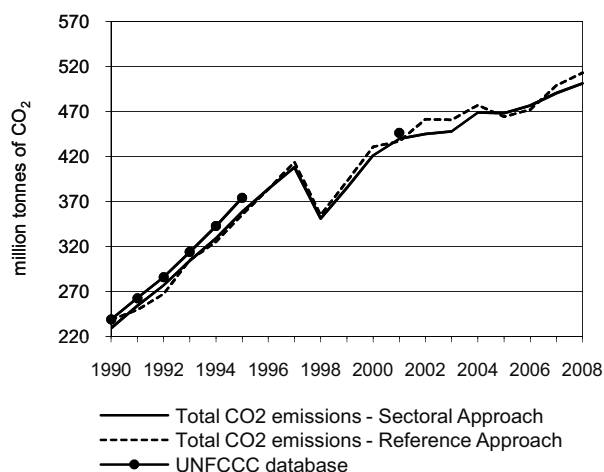


Figure 5. Electricity generation by fuel

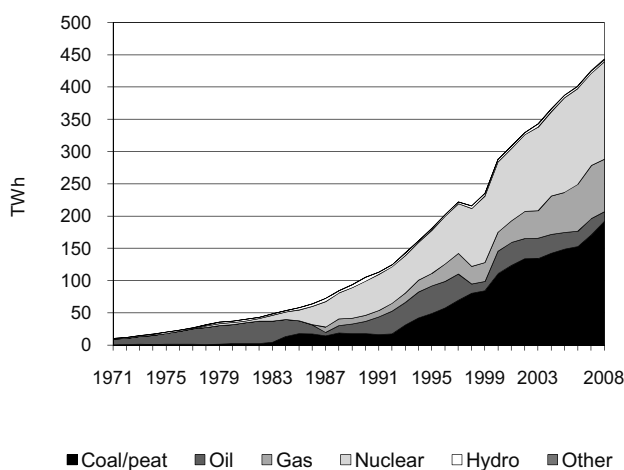
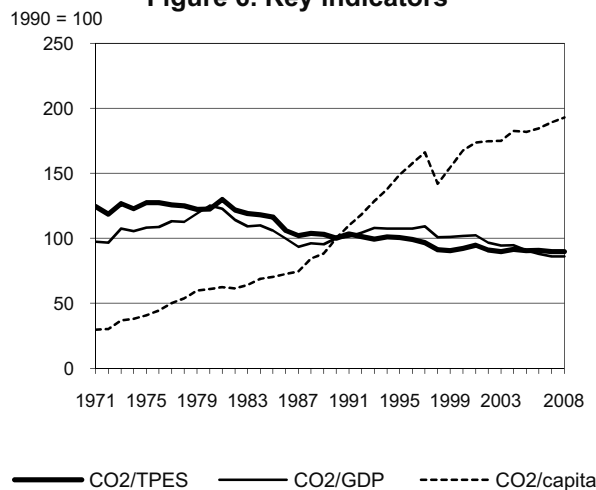


Figure 6. Key indicators



Korea

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	229.30	358.65	421.05	468.02	476.50	490.35	501.27	118.6%
CO ₂ Reference Approach (Mt of CO ₂)	238.60	355.28	430.90	464.33	471.84	498.86	512.84	114.9%
TPES (PJ)	3 897	6 061	7 773	8 797	8 940	9 301	9 502	143.8%
TPES (Mtoe)	93.09	144.76	185.66	210.10	213.52	222.15	226.95	143.8%
GDP (billion 2000 USD)	295.60	430.55	533.38	664.39	698.80	734.48	750.81	154.0%
GDP PPP (billion 2000 USD)	448.59	653.37	809.43	1 008.24	1 060.45	1 114.60	1 139.38	154.0%
Population (millions)	42.87	45.09	47.01	48.14	48.30	48.46	48.61	13.4%
CO ₂ / TPES (t CO ₂ per TJ)	58.8	59.2	54.2	53.2	53.3	52.7	52.8	-10.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.78	0.83	0.79	0.70	0.68	0.67	0.67	-13.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.51	0.55	0.52	0.46	0.45	0.44	0.44	-13.9%
CO ₂ / population (t CO ₂ per capita)	5.35	7.95	8.96	9.72	9.87	10.12	10.31	92.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	236.09	181.07	74.93	9.18	501.27	118.6%
Main activity producer elec. and heat	149.77	8.81	32.33	-	190.92	454.2%
Unallocated autoproducers	32.02	4.79	1.05	0.82	38.68	89.9%
Other energy industries	15.79	16.63	0.47	-	32.90	311.5%
Manufacturing industries and construction	34.42	41.08	12.78	7.65	95.94	78.8%
Transport	-	82.52	1.67	-	84.19	94.8%
<i>of which: road</i>	-	77.09	1.67	-	78.76	150.1%
Other	4.09	27.22	26.62	0.70	58.64	-15.8%
<i>of which: residential</i>	4.09	9.24	19.24	-	32.57	-20.0%
Reference Approach	243.50	185.83	74.34	9.18	512.84	114.9%
Diff. due to losses and/or transformation	7.76	3.75	- 0.47	-	11.04	
Statistical differences	- 0.36	1.01	- 0.13	0.00	0.53	
<i>Memo: international marine bunkers</i>	-	29.16	-	-	29.16	453.5%
<i>Memo: international aviation bunkers</i>	-	11.28	-	-	11.28	+

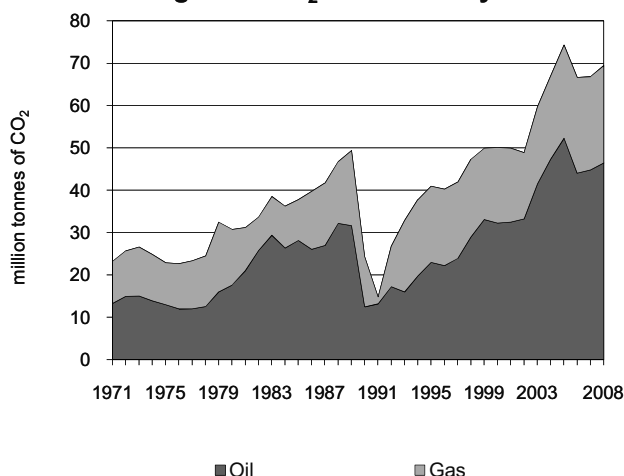
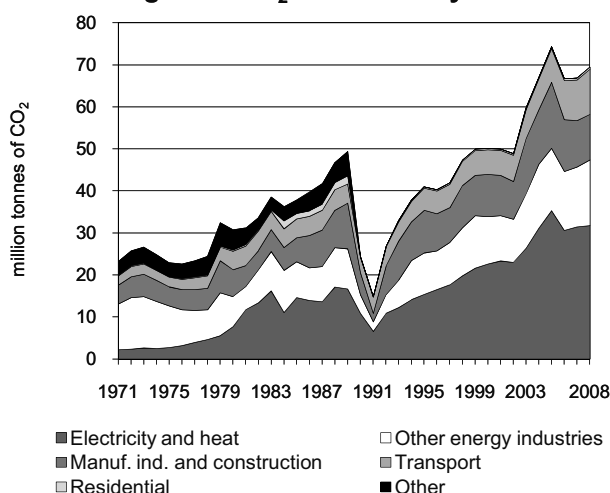
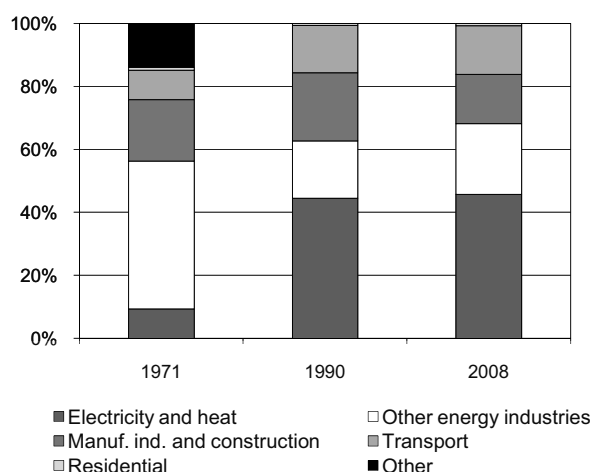
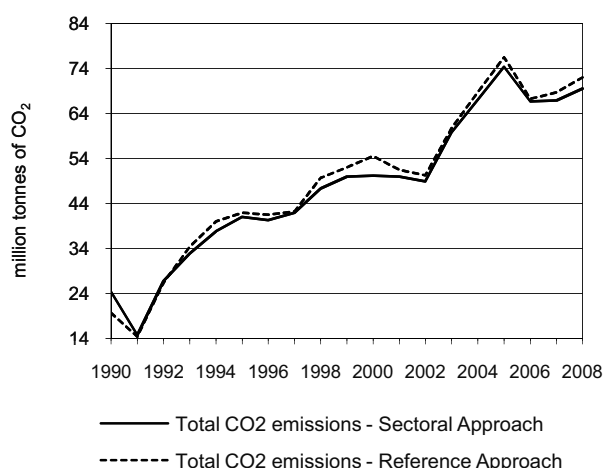
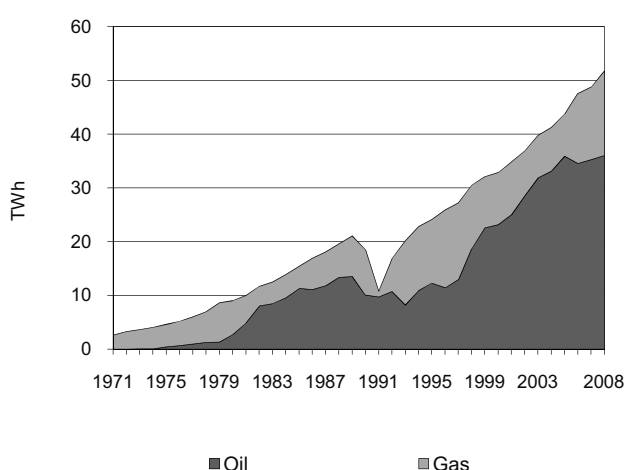
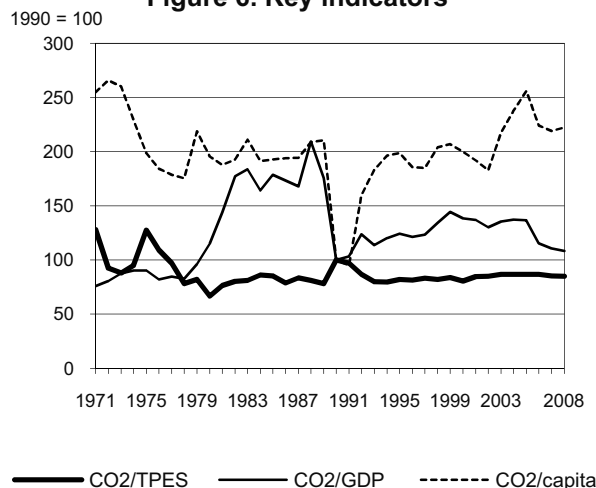
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	149.77	881.7%	24.0	24.0
Road - oil	77.09	144.8%	12.3	36.3
Manufacturing industries - oil	41.08	8.0%	6.6	42.9
Manufacturing industries - coal/peat	34.42	142.2%	5.5	48.4
Main activity prod. elec. and heat - gas	32.33	579.3%	5.2	53.6
Unallocated autoproducers - coal/peat	32.02	57.2%	5.1	58.7
Residential - gas	19.24	+	3.1	61.8
Non-specified other - oil	17.98	-36.8%	2.9	64.7
Other energy industries - oil	16.63	226.2%	2.7	67.4
Other energy industries - coal/peat	15.79	452.0%	2.5	69.9
Manufacturing industries - gas	12.78	+	2.0	71.9
<i>Memo: total CO₂ from fuel combustion</i>	<i>501.27</i>	<i>118.6%</i>	<i>80.3</i>	<i>80.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Kuwait

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Kuwait

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	24.35	41.01	50.15	74.34	66.69	66.86	69.49	185.4%
CO ₂ Reference Approach (Mt of CO ₂)	19.67	41.94	54.49	76.46	67.22	68.68	71.99	266.0%
TPES (PJ)	328	672	838	1 153	1 034	1 055	1 101	236.1%
TPES (Mtoe)	7.82	16.04	20.03	27.53	24.70	25.21	26.29	236.1%
GDP (billion 2000 USD)	25.34	34.33	37.72	56.61	60.16	62.91	66.89	164.0%
GDP PPP (billion 2000 USD)	28.84	39.06	42.92	64.42	68.45	71.59	76.11	164.0%
Population (millions)	2.13	1.80	2.19	2.54	2.60	2.66	2.73	28.4%
CO ₂ / TPES (t CO ₂ per TJ)	74.3	61.0	59.8	64.5	64.5	63.3	63.1	-15.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.96	1.19	1.33	1.31	1.11	1.06	1.04	8.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.84	1.05	1.17	1.15	0.97	0.93	0.91	8.1%
CO ₂ / population (t CO ₂ per capita)	11.46	22.76	22.90	29.33	25.66	25.11	25.47	122.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	46.52	22.97	-	69.49	185.4%
Main activity producer elec. and heat	-	24.03	7.73	-	31.76	192.7%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	6.20	9.43	-	15.63	254.7%
Manufacturing industries and construction	-	5.03	5.82	-	10.85	105.3%
Transport	-	10.75	-	-	10.75	194.6%
<i>of which: road</i>	-	10.75	-	-	10.75	194.6%
Other	-	0.51	-	-	0.51	216.3%
<i>of which: residential</i>	-	0.51	-	-	0.51	216.3%
Reference Approach	-	49.02	22.97	-	71.99	266.0%
Diff. due to losses and/or transformation	-	2.13	-	-	2.13	
Statistical differences	-	0.37	-	-	0.37	
<i>Memo: international marine bunkers</i>	-	3.17	-	-	3.17	472.2%
<i>Memo: international aviation bunkers</i>	-	2.15	-	-	2.15	320.4%

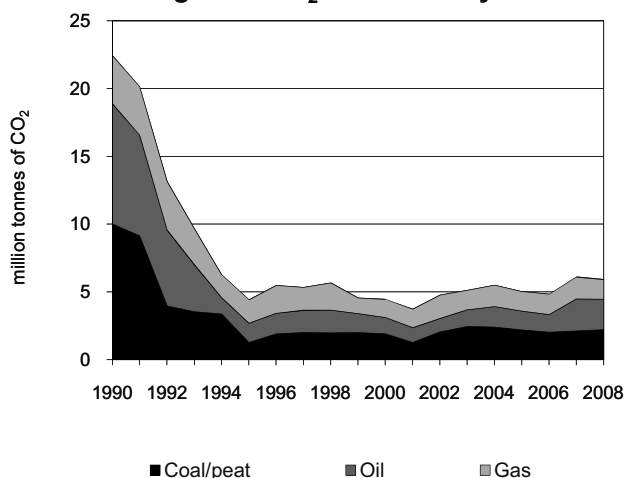
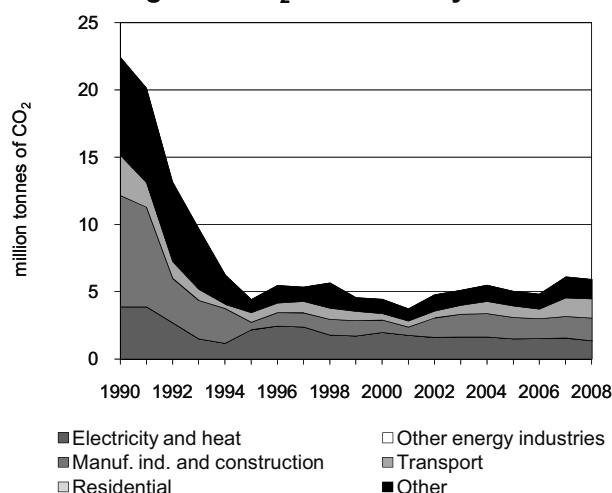
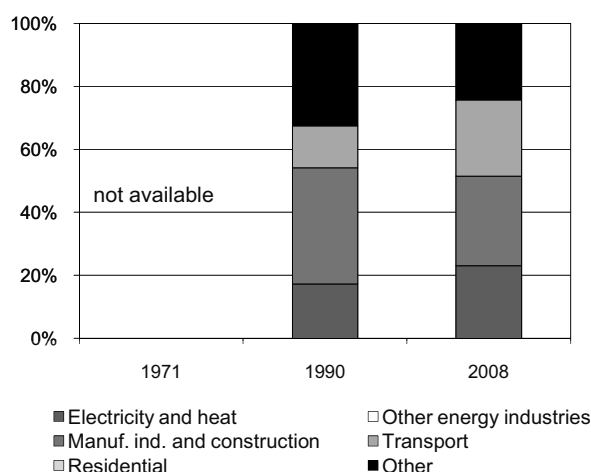
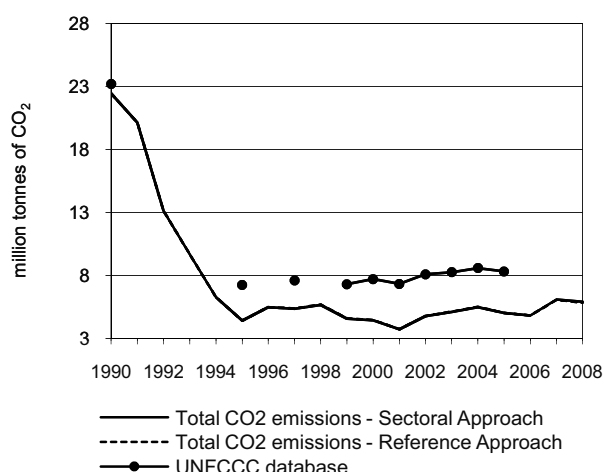
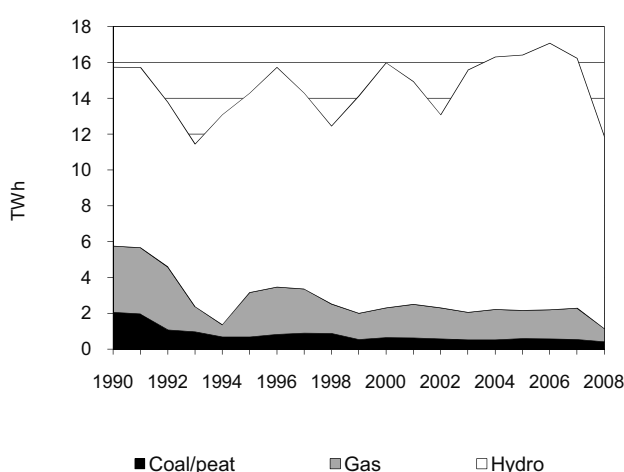
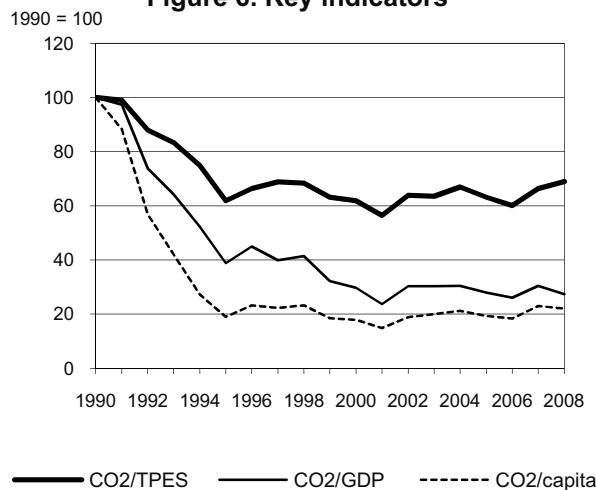
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	24.03	257.9%	26.5	26.5
Road - oil	10.75	194.6%	11.9	38.4
Other energy industries - gas	9.43	162.1%	10.4	48.8
Main activity prod. elec. and heat - gas	7.73	86.8%	8.5	57.3
Other energy industries - oil	6.20	666.3%	6.8	64.2
Manufacturing industries - gas	5.82	41.8%	6.4	70.6
Manufacturing industries - oil	5.03	325.6%	5.6	76.2
Residential - oil	0.51	216.3%	0.6	76.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>69.49</i>	<i>185.4%</i>	<i>76.7</i>	<i>76.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Kyrgyzstan

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Kyrgyzstan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	22.45	4.43	4.45	5.04	4.83	6.11	5.92	-73.6%
CO ₂ Reference Approach (Mt of CO ₂)	22.45	4.43	4.48	5.02	4.84	6.07	5.85	-73.9%
TPES (PJ)	313	100	101	111	112	129	120	-61.8%
TPES (Mtoe)	7.49	2.38	2.40	2.66	2.68	3.07	2.86	-61.8%
GDP (billion 2000 USD)	2.06	1.04	1.37	1.65	1.70	1.84	1.98	-3.6%
GDP PPP (billion 2000 USD)	11.04	5.60	7.36	8.86	9.13	9.88	10.64	-3.6%
Population (millions)	4.42	4.59	4.92	5.14	5.19	5.24	5.28	19.3%
CO ₂ / TPES (t CO ₂ per TJ)	71.6	44.3	44.3	45.3	43.1	47.5	49.4	-31.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	10.92	4.24	3.25	3.06	2.84	3.32	2.99	-72.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.03	0.79	0.61	0.57	0.53	0.62	0.56	-72.6%
CO ₂ / population (t CO ₂ per capita)	5.08	0.96	0.91	0.98	0.93	1.17	1.12	-77.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	2.23	2.23	1.46	-	5.92	-73.6%
Main activity producer elec. and heat	0.56	-	0.80	-	1.37	-64.7%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	1.66	0.02	-	-	1.69	-79.7%
Transport	-	1.41	0.02	-	1.43	-52.2%
<i>of which: road</i>	-	1.41	0.02	-	1.43	-52.2%
Other	-	0.80	0.64	-	1.44	-80.3%
<i>of which: residential</i>	-	-	-	-	-	-
Reference Approach	2.13	2.27	1.46	-	5.85	-73.9%
Diff. due to losses and/or transformation	-	0.01	-	-	0.01	
Statistical differences	- 0.10	0.02	-	-	- 0.08	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.20	-	-	1.20	358.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	1.66	-79.9%	13.9	13.9
Road - oil	1.41	-52.7%	11.8	25.8
Main activity prod. elec. and heat - gas	0.80	-62.3%	6.7	32.5
Non-specified other - oil	0.80	-86.4%	6.7	39.2
Non-specified other - gas	0.64	-54.8%	5.4	44.5
Main activity prod. elec. and heat - coal/peat	0.56	-67.7%	4.7	49.3
Manufacturing industries - oil	0.02	x	0.2	49.5
Road - gas	0.02	x	0.1	49.6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.92</i>	<i>-73.6%</i>	<i>49.6</i>	<i>49.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Latvia

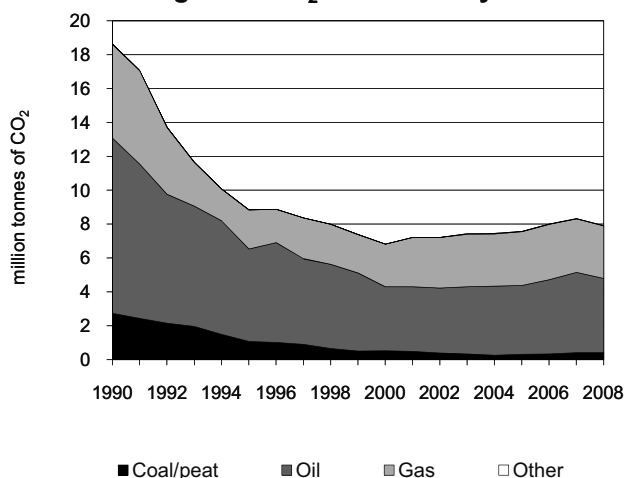
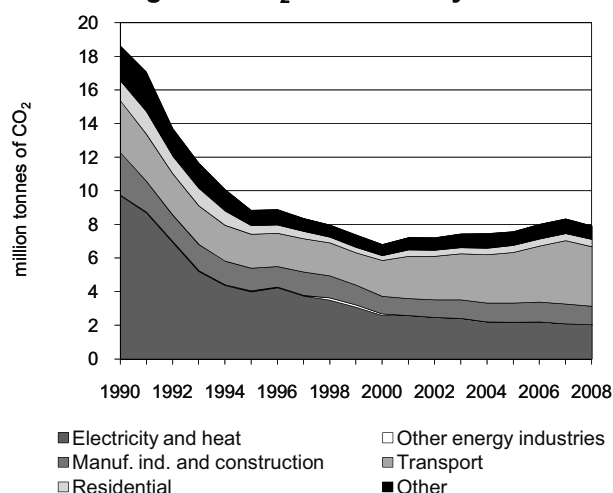
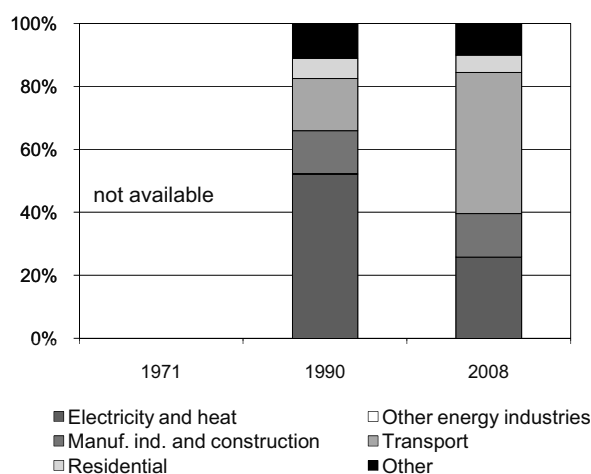
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

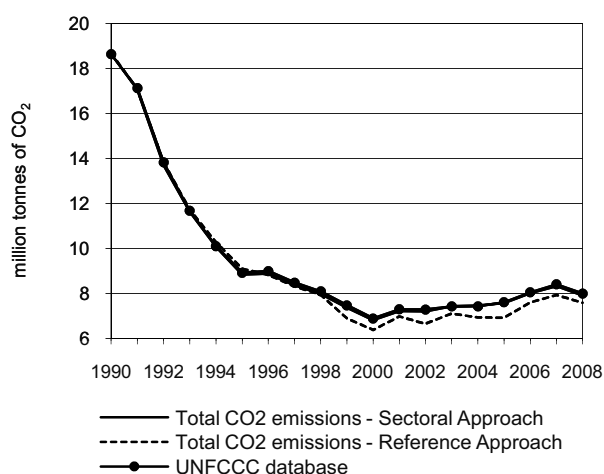


Figure 5. Electricity generation by fuel

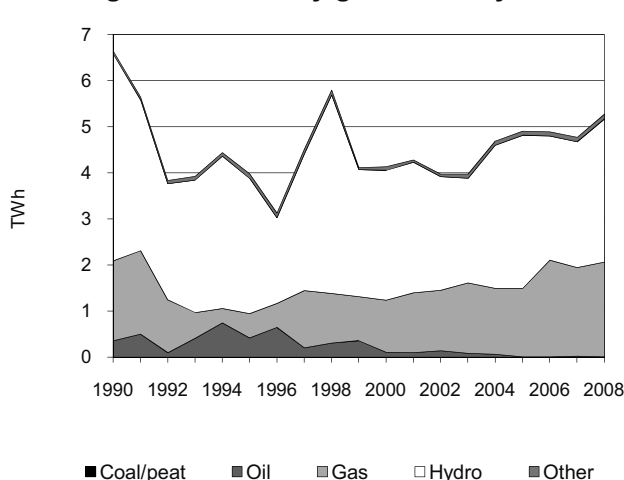
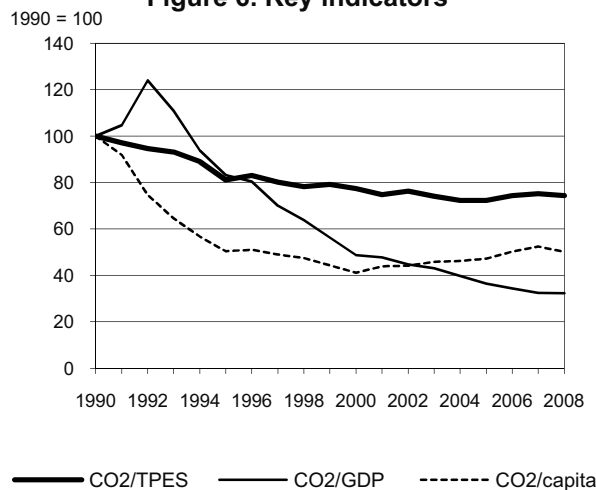


Figure 6. Key indicators



Latvia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	18.64	8.85	6.82	7.57	8.02	8.34	7.91	-57.5%
CO ₂ Reference Approach (Mt of CO ₂)	18.69	9.10	6.38	6.92	7.60	7.94	7.60	-59.4%
TPES (PJ)	329	192	156	185	190	196	188	-42.9%
TPES (Mtoe)	7.85	4.60	3.71	4.42	4.55	4.67	4.48	-42.9%
GDP (billion 2000 USD)	10.42	5.95	7.83	11.61	13.03	14.33	13.67	31.2%
GDP PPP (billion 2000 USD)	25.16	14.36	18.92	28.04	31.47	34.61	33.02	31.2%
Population (millions)	2.67	2.52	2.37	2.30	2.29	2.28	2.27	-15.2%
CO ₂ / TPES (t CO ₂ per TJ)	56.7	46.0	43.9	40.9	42.1	42.6	42.2	-25.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.79	1.49	0.87	0.65	0.62	0.58	0.58	-67.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.74	0.62	0.36	0.27	0.25	0.24	0.24	-67.6%
CO ₂ / population (t CO ₂ per capita)	6.98	3.52	2.88	3.29	3.50	3.66	3.49	-49.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.41	4.38	3.10	0.02	7.91	-57.5%
Main activity producer elec. and heat	0.04	0.07	1.82	-	1.93	-68.3%
Unallocated autoproducers	0.01	-	0.10	-	0.11	-96.9%
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.20	0.26	0.61	0.02	1.09	-57.0%
Transport	-	3.55	0.00	-	3.55	14.9%
<i>of which: road</i>	-	3.25	0.00	-	3.26	39.9%
Other	0.16	0.51	0.56	-	1.23	-62.3%
<i>of which: residential</i>	0.08	0.09	0.26	-	0.43	-64.0%
Reference Approach	0.42	4.04	3.11	0.02	7.60	-59.4%
Diff. due to losses and/or transformation	0.01	-0.03	0.02	-	-0.00	
Statistical differences	-0.00	-0.32	0.00	-	-0.32	
<i>Memo: international marine bunkers</i>	-	0.65	-	-	0.65	-56.4%
<i>Memo: international aviation bunkers</i>	-	0.29	-	-	0.29	32.4%

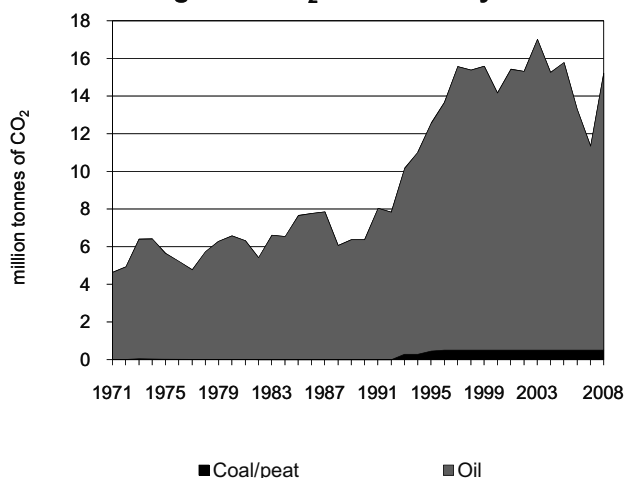
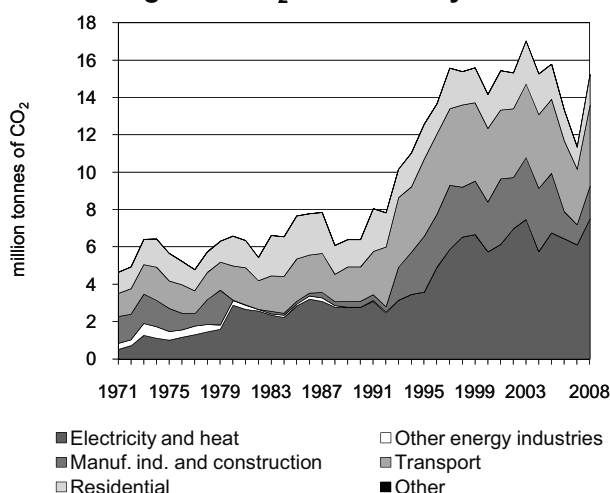
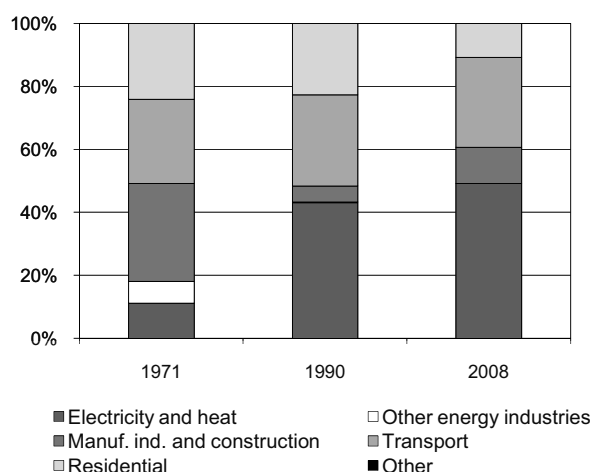
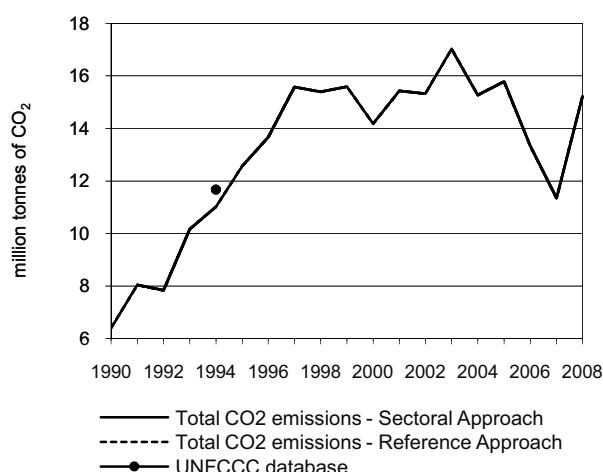
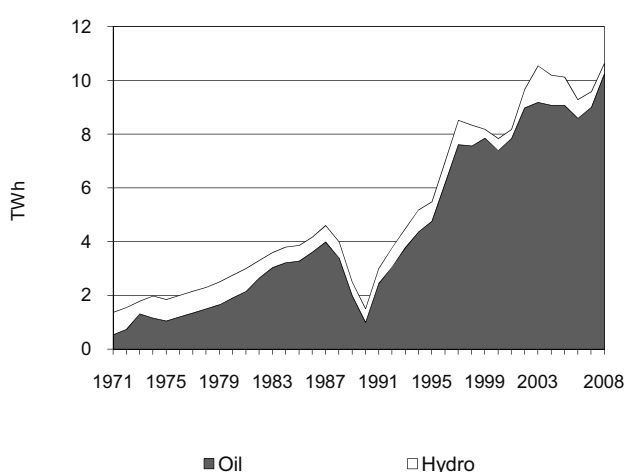
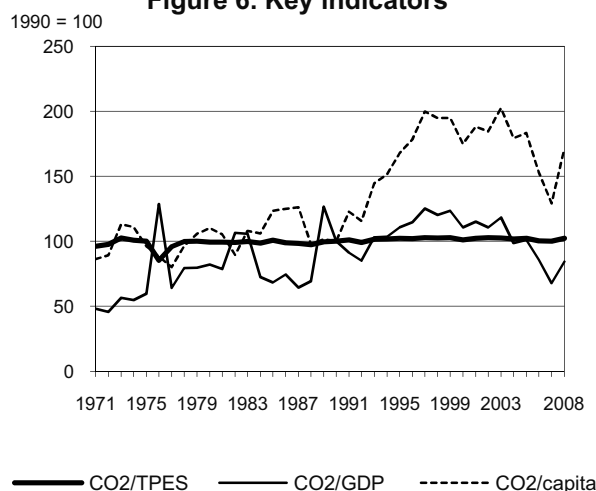
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	3.25	40.9%	27.5	27.5
Main activity prod. elec. and heat - gas	1.82	-33.4%	15.4	43.0
Manufacturing industries - gas	0.61	-40.4%	5.2	48.1
Non-specified other - oil	0.42	-68.0%	3.6	51.7
Non-specified other - gas	0.30	-2.4%	2.5	54.2
Other transport - oil	0.29	-58.4%	2.5	56.7
Residential - gas	0.26	17.2%	2.2	58.9
Manufacturing industries - oil	0.26	-81.2%	2.2	61.1
Manufacturing industries - coal/peat	0.20	52.9%	1.7	62.8
Unallocated autoproducers - gas	0.10	-91.3%	0.9	63.6
Residential - oil	0.09	-72.6%	0.8	64.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.91</i>	<i>-57.5%</i>	<i>67.0</i>	<i>67.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Lebanon

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Lebanon

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	6.39	12.57	14.17	15.79	13.32	11.35	15.23	138.5%
CO ₂ Reference Approach (Mt of CO ₂)	6.41	12.57	14.17	15.79	13.32	11.35	15.23	137.8%
TPES (PJ)	94	181	206	227	195	167	219	133.4%
TPES (Mtoe)	2.25	4.32	4.93	5.43	4.67	3.99	5.24	133.4%
GDP (billion 2000 USD)	8.39	14.91	16.82	20.53	20.42	21.95	23.70	182.6%
GDP PPP (billion 2000 USD)	8.09	14.38	16.23	19.80	19.69	21.17	22.86	182.6%
Population (millions)	2.97	3.49	3.77	4.01	4.06	4.10	4.14	39.2%
CO ₂ / TPES (t CO ₂ per TJ)	67.9	69.5	68.7	69.4	68.2	67.9	69.4	2.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.76	0.84	0.84	0.77	0.65	0.52	0.64	-15.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.79	0.87	0.87	0.80	0.68	0.54	0.67	-15.6%
CO ₂ / population (t CO ₂ per capita)	2.15	3.60	3.76	3.94	3.28	2.77	3.68	71.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.51	14.72	-	-	15.23	138.5%
Main activity producer elec. and heat	-	7.49	-	-	7.49	172.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.51	1.24	-	-	1.75	440.9%
Transport	-	4.34	-	-	4.34	135.5%
<i>of which: road</i>	-	4.34	-	-	4.34	135.5%
Other	-	1.65	-	-	1.65	13.4%
<i>of which: residential</i>	-	1.65	-	-	1.65	13.4%
Reference Approach	0.51	14.72	-	-	15.23	137.8%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	0.07	-	-	0.07	..
<i>Memo: international aviation bunkers</i>	-	0.53	-	-	0.53	178.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	7.49	172.2%	38.9	38.9
Road - oil	4.34	135.5%	22.5	61.4
Residential - oil	1.65	13.4%	8.5	70.0
Manufacturing industries - oil	1.24	282.2%	6.4	76.4
Manufacturing industries - coal/peat	0.51	x	2.7	79.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>15.23</i>	<i>138.5%</i>	<i>79.1</i>	<i>79.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Libyan Arab Jamahiriya

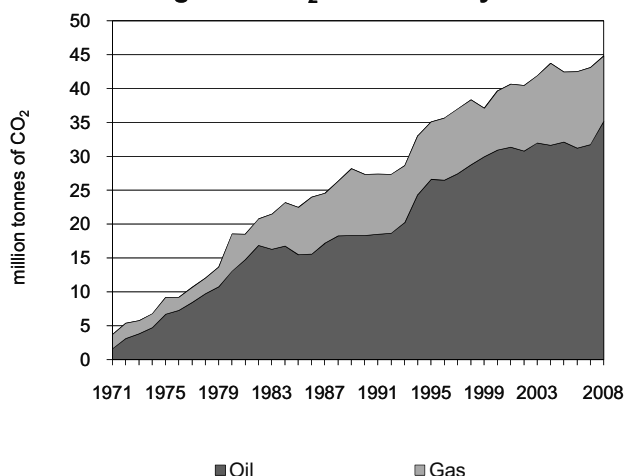
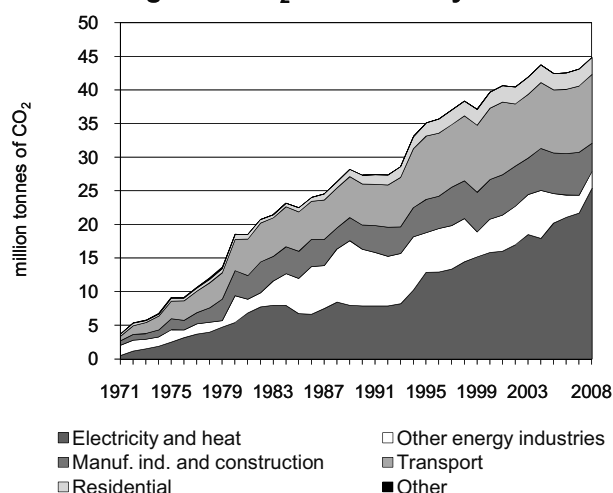
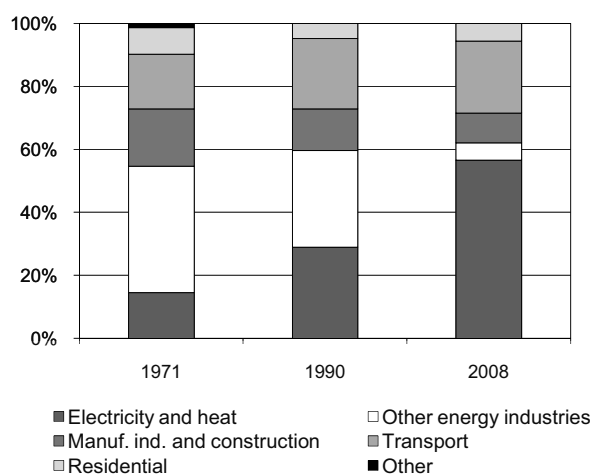
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

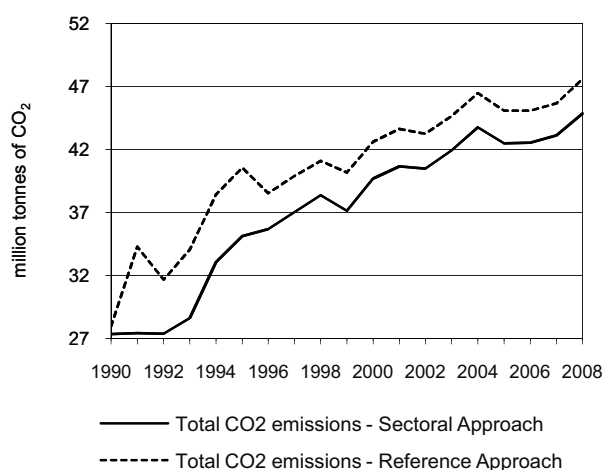


Figure 5. Electricity generation by fuel

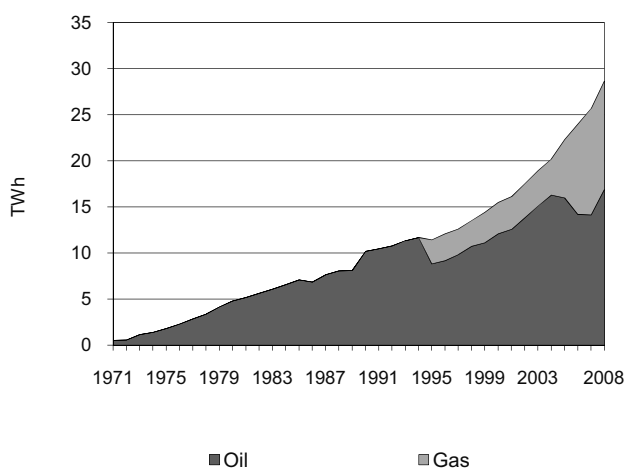
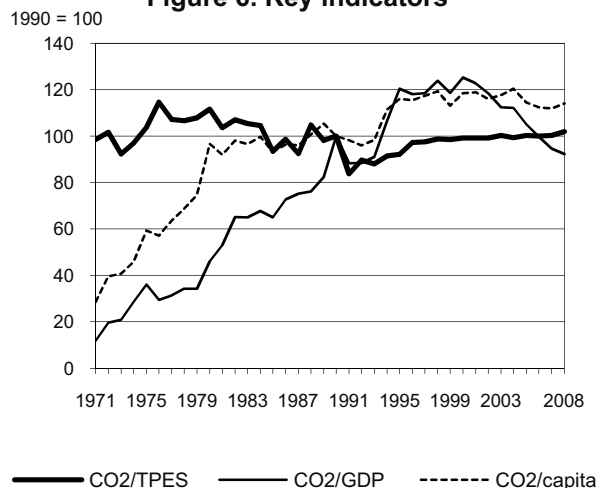


Figure 6. Key indicators



Libyan Arab Jamahiriya

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	27.35	35.12	39.69	42.48	42.54	43.13	44.85	64.0%
CO ₂ Reference Approach (Mt of CO ₂)	27.97	40.56	42.62	45.08	45.07	45.66	47.59	70.2%
TPES (PJ)	474	661	694	735	738	746	763	60.8%
TPES (Mtoe)	11.33	15.79	16.57	17.56	17.63	17.82	18.22	60.8%
GDP (billion 2000 USD)	29.79	31.77	34.50	44.00	46.46	49.62	52.96	77.8%
GDP PPP (billion 2000 USD)	40.48	43.18	46.89	59.80	63.15	67.44	71.97	77.8%
Population (millions)	4.36	4.83	5.35	5.92	6.04	6.16	6.28	43.8%
CO ₂ / TPES (t CO ₂ per TJ)	57.7	53.1	57.2	57.8	57.6	57.8	58.8	2.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.92	1.11	1.15	0.97	0.92	0.87	0.85	-7.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.68	0.81	0.85	0.71	0.67	0.64	0.62	-7.8%
CO ₂ / population (t CO ₂ per capita)	6.27	7.27	7.42	7.18	7.04	7.01	7.15	14.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	35.20	9.65	-	44.85	64.0%
Main activity producer elec. and heat	-	18.39	6.99	-	25.38	220.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	2.20	0.28	-	2.49	-70.4%
Manufacturing industries and construction	-	1.85	2.38	-	4.23	17.4%
Transport	-	10.22	-	-	10.22	66.9%
<i>of which: road</i>	-	10.21	-	-	10.21	66.9%
Other	-	2.53	-	-	2.53	94.7%
<i>of which: residential</i>	-	2.53	-	-	2.53	94.7%
Reference Approach	-	37.94	9.65	-	47.59	70.2%
Diff. due to losses and/or transformation	-	2.75	-	-	2.75	
Statistical differences	-	0.00	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	0.28	-	-	0.28	12.5%
<i>Memo: international aviation bunkers</i>	-	0.59	-	-	0.59	-6.5%

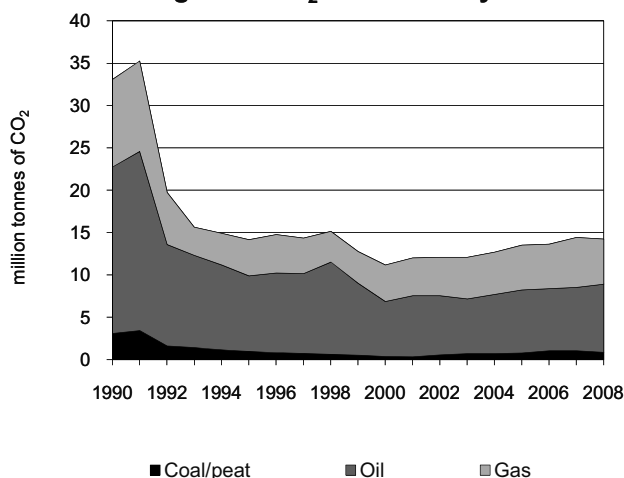
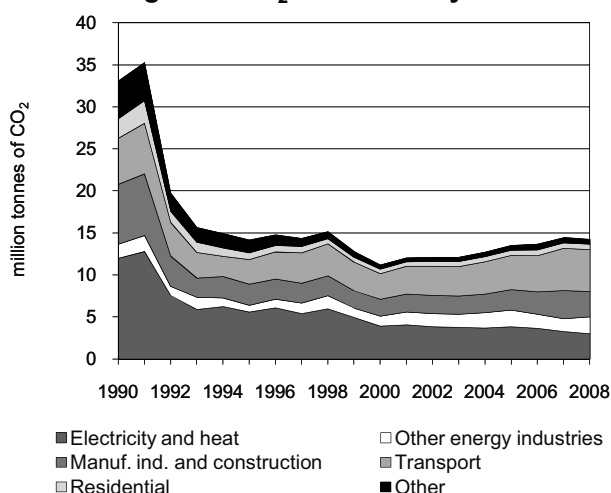
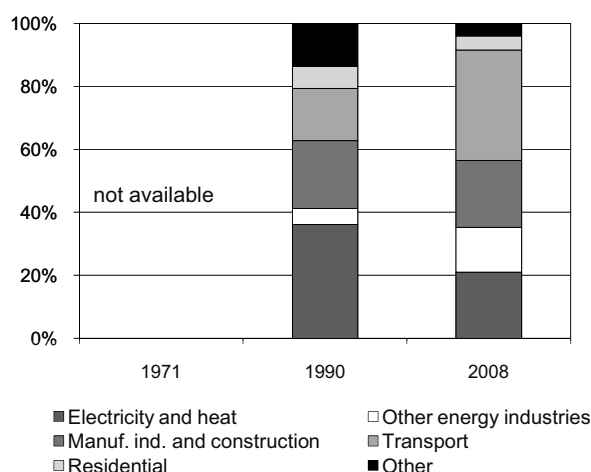
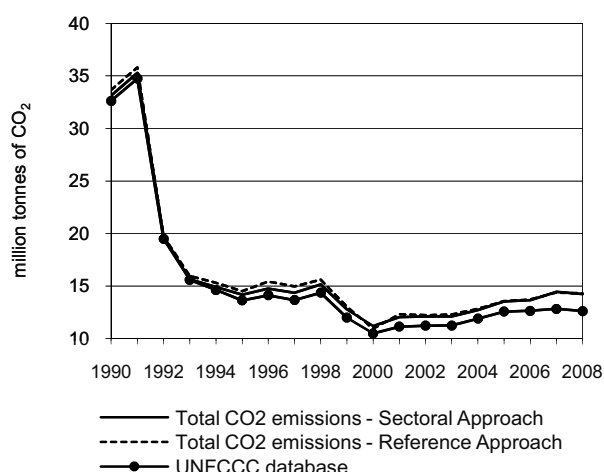
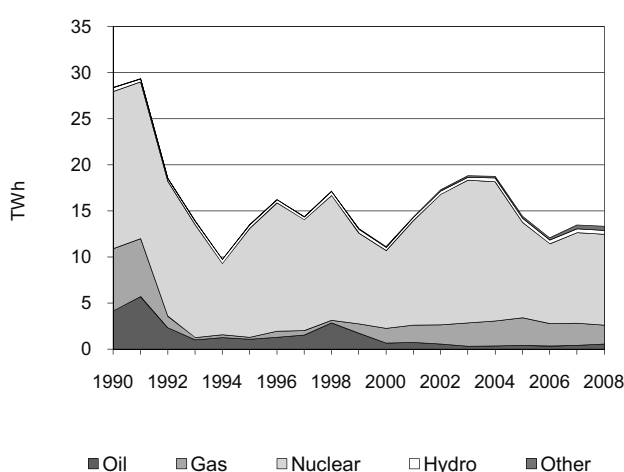
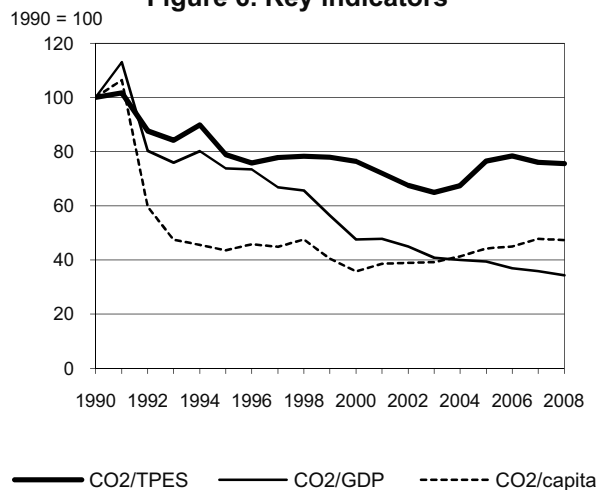
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	18.39	132.3%	27.7	27.7
Road - oil	10.21	66.9%	15.4	43.0
Main activity prod. elec. and heat - gas	6.99	x	10.5	53.5
Residential - oil	2.53	94.7%	3.8	57.3
Manufacturing industries - gas	2.38	-6.5%	3.6	60.9
Other energy industries - oil	2.20	12.8%	3.3	64.2
Manufacturing industries - oil	1.85	75.4%	2.8	67.0
Other energy industries - gas	0.28	-95.6%	0.4	67.4
Other transport - oil	0.01	50.0%	0.0	67.4
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>44.85</i>	<i>64.0%</i>	<i>67.4</i>	<i>67.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Lithuania

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Lithuania

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	33.11	14.17	11.20	13.54	13.66	14.45	14.24	-57.0%
CO ₂ Reference Approach (Mt of CO ₂)	33.68	14.51	10.93	13.58	13.72	14.39	14.29	-57.6%
TPES (PJ)	675	366	299	360	355	387	384	-43.0%
TPES (Mtoe)	16.11	8.75	7.13	8.61	8.48	9.25	9.18	-43.0%
GDP (billion 2000 USD)	16.06	9.32	11.43	16.64	17.95	19.55	20.14	25.4%
GDP PPP (billion 2000 USD)	42.92	24.89	30.55	44.46	47.95	52.23	53.81	25.4%
Population (millions)	3.70	3.63	3.50	3.41	3.39	3.38	3.36	-9.2%
CO ₂ / TPES (t CO ₂ per TJ)	49.1	38.7	37.5	37.6	38.5	37.3	37.1	-24.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.06	1.52	0.98	0.81	0.76	0.74	0.71	-65.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.77	0.57	0.37	0.30	0.28	0.28	0.26	-65.7%
CO ₂ / population (t CO ₂ per capita)	8.95	3.90	3.20	3.97	4.02	4.28	4.24	-52.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.86	8.06	5.32	-	14.24	-57.0%
Main activity producer elec. and heat	0.03	0.34	2.49	-	2.85	-74.0%
Unallocated autoproducers	0.00	0.09	0.06	-	0.15	-85.5%
Other energy industries	-	2.02	0.01	-	2.02	20.6%
Manufacturing industries and construction	0.47	0.41	2.14	-	3.02	-57.7%
Transport	-	4.94	0.06	-	4.99	-8.6%
<i>of which: road</i>	-	4.65	-	-	4.65	-8.6%
Other	0.35	0.27	0.58	-	1.20	-82.4%
<i>of which: residential</i>	0.19	0.10	0.34	-	0.64	-72.6%
Reference Approach	0.86	8.09	5.34	-	14.29	-57.6%
Diff. due to losses and/or transformation	0.00	0.03	0.02	-	0.05	
Statistical differences	- 0.00	0.00	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	0.28	-	-	0.28	-4.9%
<i>Memo: international aviation bunkers</i>	-	0.23	-	-	0.23	-43.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	4.65	-8.6%	17.9	17.9
Main activity prod. elec. and heat - gas	2.49	-54.0%	9.6	27.5
Manufacturing industries - gas	2.14	-30.5%	8.2	35.7
Other energy industries - oil	2.02	20.2%	7.8	43.5
Manufacturing industries - coal/peat	0.47	156.1%	1.8	45.3
Manufacturing industries - oil	0.41	-89.4%	1.6	46.9
Residential - gas	0.34	-33.9%	1.3	48.2
Main activity prod. elec. and heat - oil	0.34	-93.9%	1.3	49.5
Other transport - oil	0.29	-23.7%	1.1	50.7
Non-specified other - gas	0.24	-72.7%	0.9	51.6
Residential - coal/peat	0.19	-86.3%	0.8	52.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>14.24</i>	<i>-57.0%</i>	<i>54.9</i>	<i>54.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Luxembourg

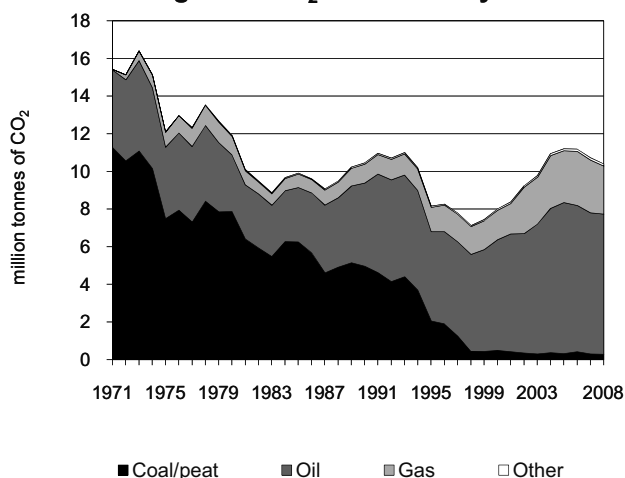
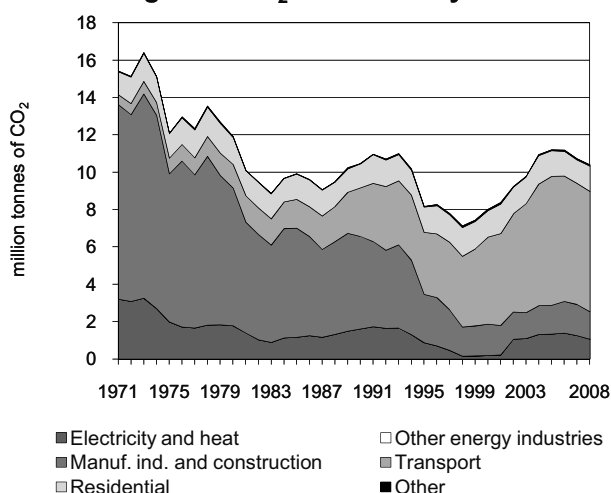
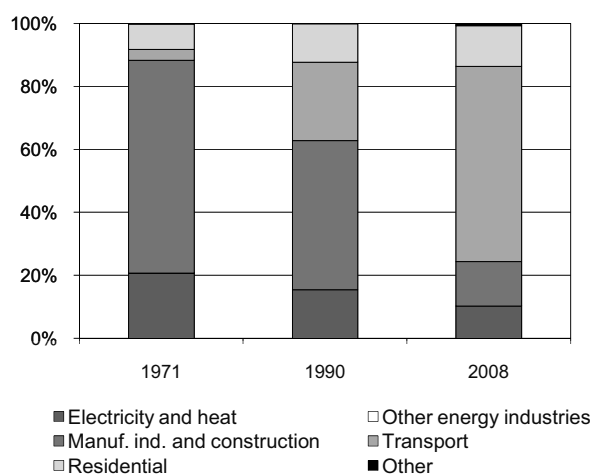
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

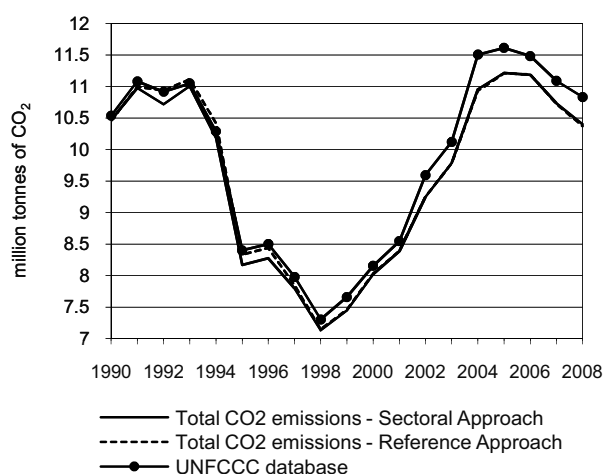


Figure 5. Electricity generation by fuel

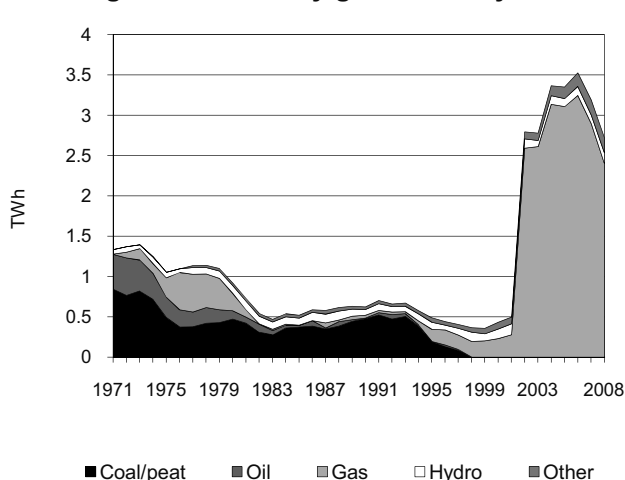
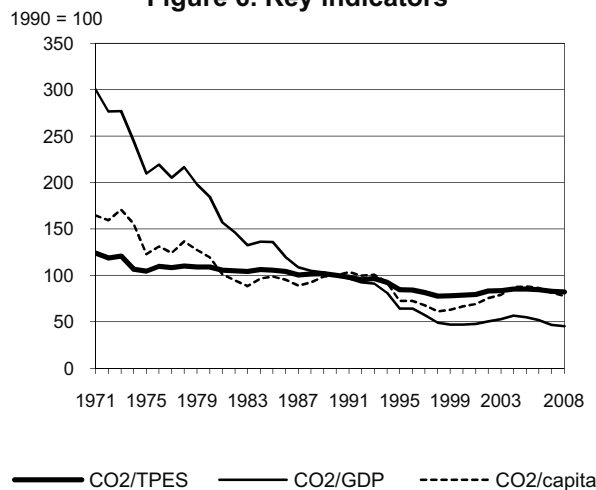


Figure 6. Key indicators



Luxembourg

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	10.47	8.17	8.02	11.21	11.19	10.73	10.40	-0.6%
CO ₂ Reference Approach (Mt of CO ₂)	10.45	8.33	8.03	11.21	11.19	10.72	10.37	-0.8%
TPES (PJ)	143	132	139	179	180	177	172	20.7%
TPES (Mtoe)	3.41	3.15	3.32	4.28	4.31	4.22	4.12	20.7%
GDP (billion 2000 USD)	12.40	15.05	20.27	24.18	25.53	27.18	27.19	119.2%
GDP PPP (billion 2000 USD)	14.32	17.39	23.41	27.92	29.48	31.39	31.40	119.2%
Population (millions)	0.38	0.41	0.44	0.47	0.47	0.48	0.49	28.0%
CO ₂ / TPES (t CO ₂ per TJ)	73.3	61.9	57.8	62.5	62.0	60.7	60.3	-17.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.84	0.54	0.40	0.46	0.44	0.39	0.38	-54.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.73	0.47	0.34	0.40	0.38	0.34	0.33	-54.7%
CO ₂ / population (t CO ₂ per capita)	27.40	19.92	18.27	24.11	23.65	22.35	21.27	-22.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.28	7.45	2.55	0.11	10.40	-0.6%
Main activity producer elec. and heat	-	-	0.74	0.11	0.85	+
Unallocated autoproducers	-	-	0.21	-	0.21	-86.2%
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	0.28	0.23	0.96	-	1.48	-70.2%
Transport	-	6.44	-	-	6.44	147.3%
<i>of which: road</i>	-	6.40	-	-	6.40	146.6%
Other	-	0.79	0.63	-	1.42	9.8%
<i>of which: residential</i>	-	0.71	0.63	-	1.34	5.3%
Reference Approach	0.28	7.42	2.55	0.11	10.37	-0.8%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.03	-	-	-0.03	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	1.32	-	-	1.32	238.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	6.40	146.6%	53.1	53.1
Manufacturing industries - gas	0.96	47.8%	8.0	61.1
Main activity prod. elec. and heat - gas	0.74	x	6.2	67.2
Residential - oil	0.71	-23.0%	5.9	73.1
Residential - gas	0.63	92.5%	5.2	78.4
Manufacturing industries - coal/peat	0.28	-91.7%	2.4	80.7
Manufacturing industries - oil	0.23	-73.8%	1.9	82.6
Unallocated autoproducers - gas	0.21	844.4%	1.8	84.4
Main activity prod. elec. and heat - other	0.11	53.3%	0.9	85.3
Non-specified other - oil	0.07	380.0%	0.6	85.9
Other transport - oil	0.04	390.2%	0.3	86.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>10.40</i>	<i>-0.6%</i>	<i>86.2</i>	<i>86.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Former Yugoslav Republic of Macedonia

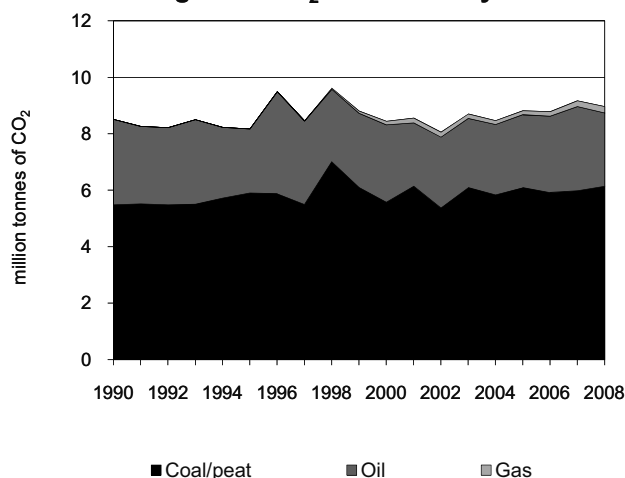
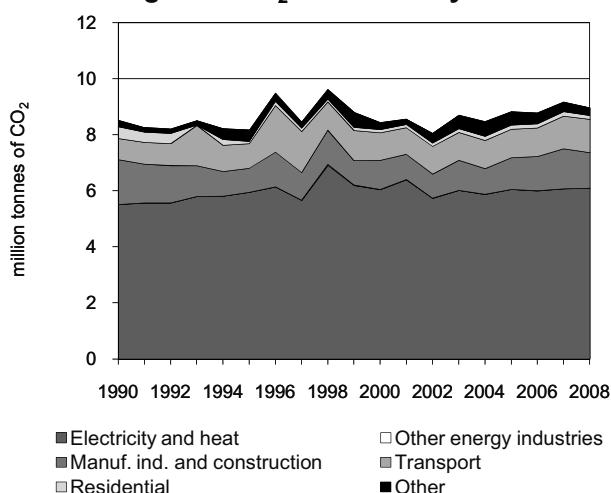
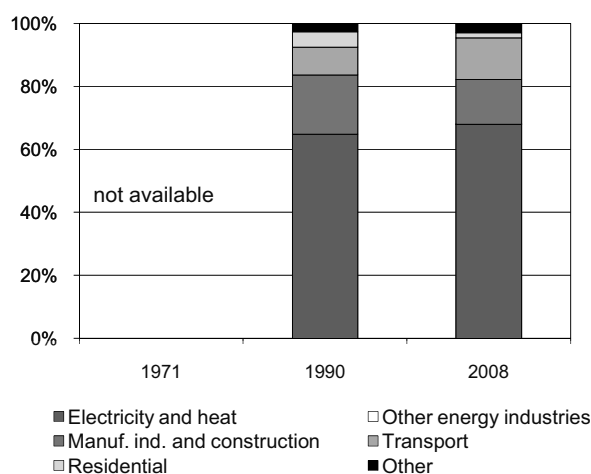
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

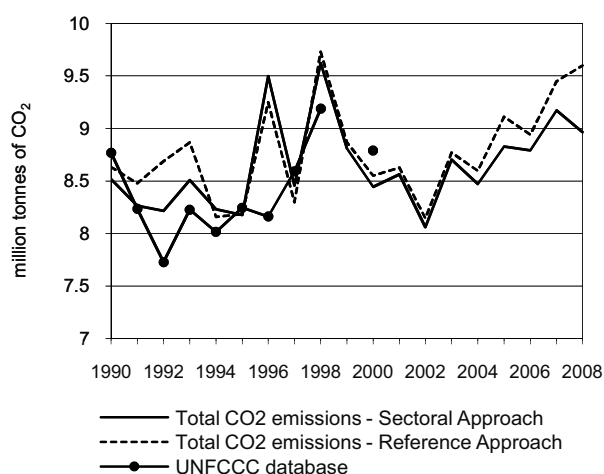


Figure 5. Electricity generation by fuel

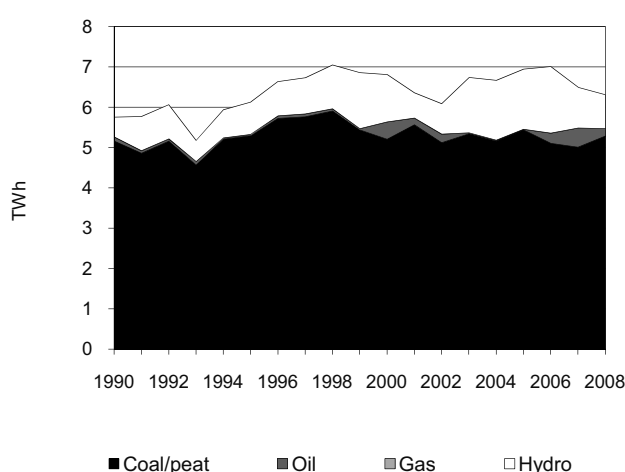
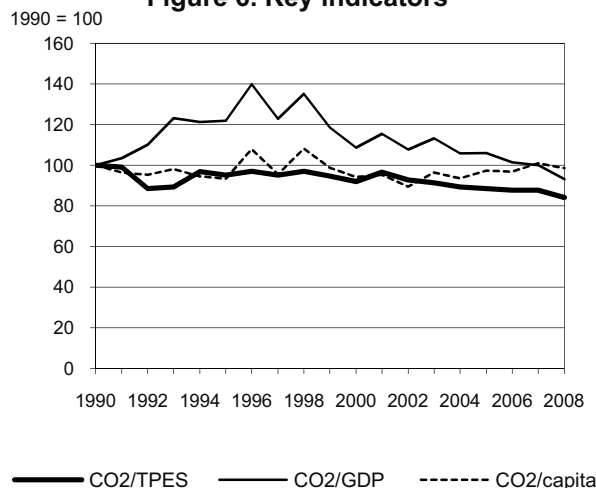


Figure 6. Key indicators



Former Yugoslav Republic of Macedonia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	8.52	8.18	8.44	8.83	8.79	9.17	8.96	5.2%
CO ₂ Reference Approach (Mt of CO ₂)	8.63	8.19	8.55	9.11	8.94	9.45	9.60	11.2%
TPES (PJ)	104	105	112	121	122	127	130	25.3%
TPES (Mtoe)	2.48	2.50	2.67	2.90	2.91	3.04	3.10	25.3%
GDP (billion 2000 USD)	3.93	3.10	3.59	3.85	4.00	4.23	4.45	13.1%
GDP PPP (billion 2000 USD)	13.34	10.51	12.17	13.05	13.57	14.37	15.08	13.1%
Population (millions)	1.91	1.96	2.01	2.03	2.04	2.04	2.04	6.8%
CO ₂ / TPES (t CO ₂ per TJ)	82.1	78.1	75.4	72.7	72.0	72.0	69.0	-16.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.17	2.64	2.35	2.29	2.20	2.17	2.02	-6.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.64	0.78	0.69	0.68	0.65	0.64	0.59	-6.9%
CO ₂ / population (t CO ₂ per capita)	4.46	4.17	4.20	4.34	4.32	4.50	4.40	-1.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	6.15	2.59	0.23	-	8.96	5.2%
Main activity producer elec. and heat	5.54	0.20	0.12	-	5.86	14.0%
Unallocated autoproducers	0.04	0.16	0.03	-	0.24	-38.1%
Other energy industries	-	0.00	-	-	0.00	x
Manufacturing industries and construction	0.55	0.65	0.07	-	1.27	-20.5%
Transport	-	1.19	0.00	-	1.19	56.9%
<i>of which: road</i>	-	1.16	0.00	-	1.16	58.2%
Other	0.02	0.39	0.00	-	0.41	-36.4%
<i>of which: residential</i>	0.01	0.13	-	-	0.14	-65.6%
Reference Approach	6.54	2.83	0.23	-	9.60	11.2%
Diff. due to losses and/or transformation	-	0.24	0.00	-	0.24	
Statistical differences	0.39	0.00	- 0.00	-	0.39	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.02	-	-	0.02	20.0%

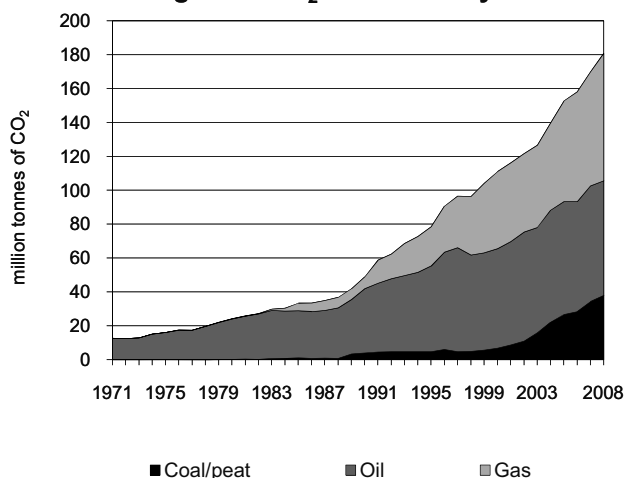
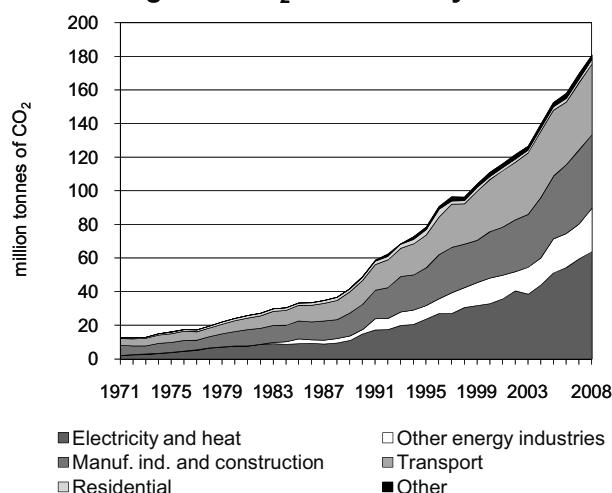
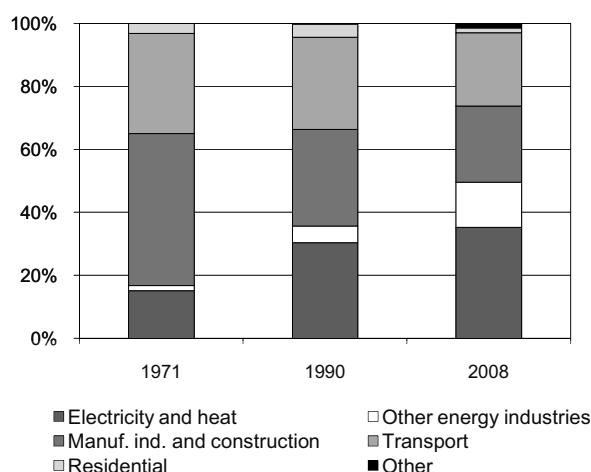
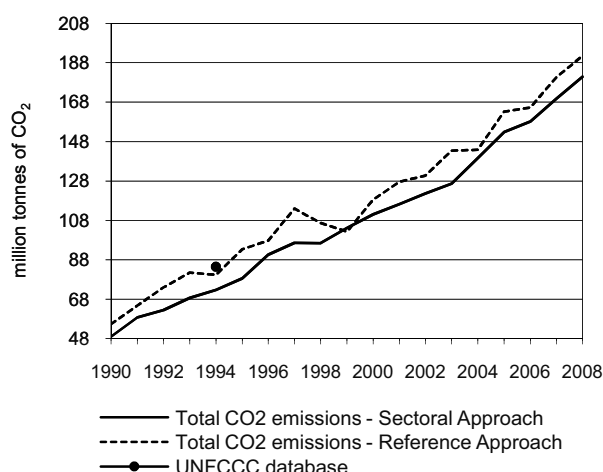
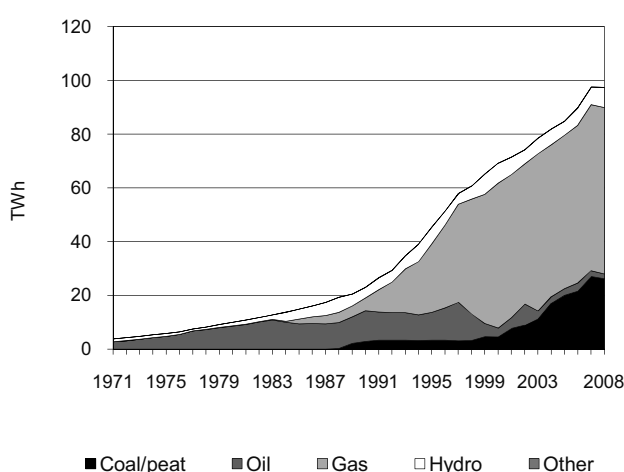
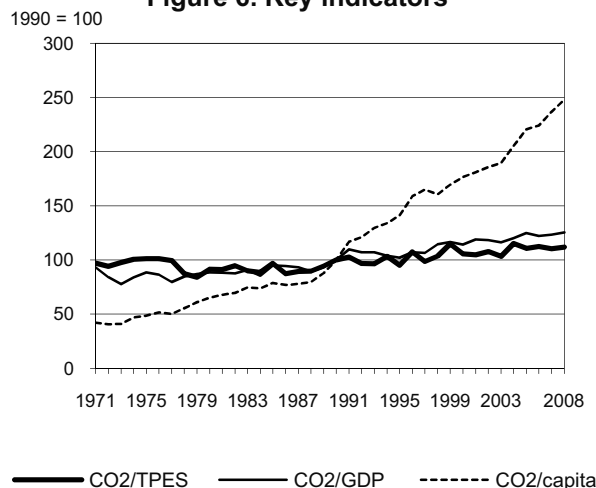
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	5.54	11.5%	47.6	47.6
Road - oil	1.16	58.1%	10.0	57.6
Manufacturing industries - oil	0.65	-45.0%	5.6	63.2
Manufacturing industries - coal/peat	0.55	32.5%	4.7	67.9
Non-specified other - oil	0.26	20.0%	2.2	70.1
Main activity prod. elec. and heat - oil	0.20	16.1%	1.7	71.8
Unallocated autoproducers - oil	0.16	-45.7%	1.4	73.2
Residential - oil	0.13	-67.8%	1.1	74.3
Main activity prod. elec. and heat - gas	0.12	x	1.0	75.3
Manufacturing industries - gas	0.07	x	0.6	75.9
Unallocated autoproducers - coal/peat	0.04	-48.9%	0.4	76.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.96</i>	<i>5.2%</i>	<i>77.0</i>	<i>77.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Malaysia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Malaysia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	48.92	78.49	111.06	152.78	158.12	169.90	180.87	269.7%
CO ₂ Reference Approach (Mt of CO ₂)	55.39	93.31	118.51	163.26	165.27	180.77	191.53	245.8%
TPES (PJ)	921	1 554	1 979	2 599	2 649	2 895	3 046	230.9%
TPES (Mtoe)	21.99	37.11	47.27	62.07	63.27	69.15	72.75	230.9%
GDP (billion 2000 USD)	47.21	74.22	93.79	118.22	125.05	132.99	139.16	194.8%
GDP PPP (billion 2000 USD)	103.05	162.02	204.74	258.08	272.98	290.31	303.78	194.8%
Population (millions)	18.10	20.59	23.27	25.65	26.11	26.55	26.99	49.1%
CO ₂ / TPES (t CO ₂ per TJ)	53.1	50.5	56.1	58.8	59.7	58.7	59.4	11.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.04	1.06	1.18	1.29	1.26	1.28	1.30	25.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.47	0.48	0.54	0.59	0.58	0.59	0.60	25.4%
CO ₂ / population (t CO ₂ per capita)	2.70	3.81	4.77	5.96	6.06	6.40	6.70	148.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	37.97	67.77	75.13	-	180.87	269.7%
Main activity producer elec. and heat	31.32	1.50	28.70	-	61.52	314.0%
Unallocated autoproducers	-	0.19	2.17	-	2.36	x
Other energy industries	-	2.74	23.07	-	25.82	897.4%
Manufacturing industries and construction	6.65	16.35	20.70	-	43.70	190.7%
Transport	-	41.73	0.41	-	42.14	194.7%
<i>of which: road</i>	-	41.47	-	-	41.47	190.1%
Other	-	5.25	0.08	-	5.33	149.6%
<i>of which: residential</i>	-	2.65	0.01	-	2.67	32.6%
Reference Approach	36.86	76.52	78.15	-	191.53	245.8%
Diff. due to losses and/or transformation	-	0.47	3.77	-	4.24	
Statistical differences	- 1.11	8.29	- 0.75	-	6.43	
<i>Memo: international marine bunkers</i>	-	0.19	-	-	0.19	-32.9%
<i>Memo: international aviation bunkers</i>	-	6.26	-	-	6.26	223.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	41.47	190.1%	15.7	15.7
Main activity prod. elec. and heat - coal/peat	31.32	+	11.8	27.5
Main activity prod. elec. and heat - gas	28.70	903.0%	10.8	38.3
Other energy industries - gas	23.07	959.2%	8.7	47.0
Manufacturing industries - gas	20.70	+	7.8	54.9
Manufacturing industries - oil	16.35	40.8%	6.2	61.0
Manufacturing industries - coal/peat	6.65	312.4%	2.5	63.6
Other energy industries - oil	2.74	569.0%	1.0	64.6
Residential - oil	2.65	36.5%	1.0	65.6
Non-specified other - oil	2.60	+	1.0	66.6
Unallocated autoproducers - gas	2.17	x	0.8	67.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>180.87</i>	<i>269.7%</i>	<i>68.3</i>	<i>68.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Malta

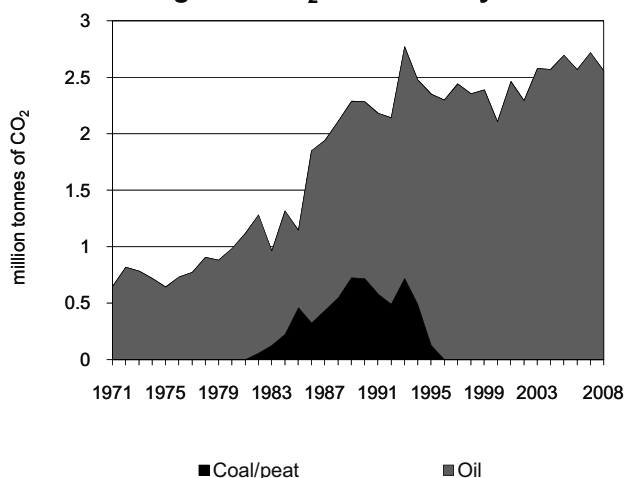
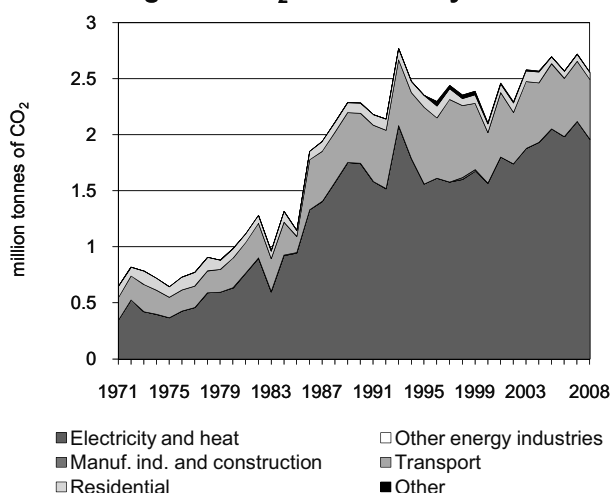
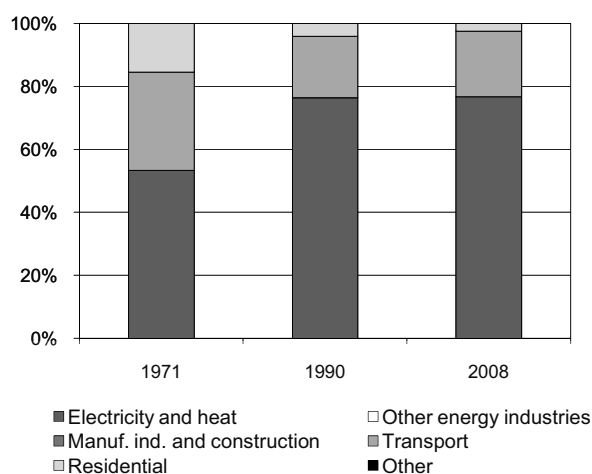
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

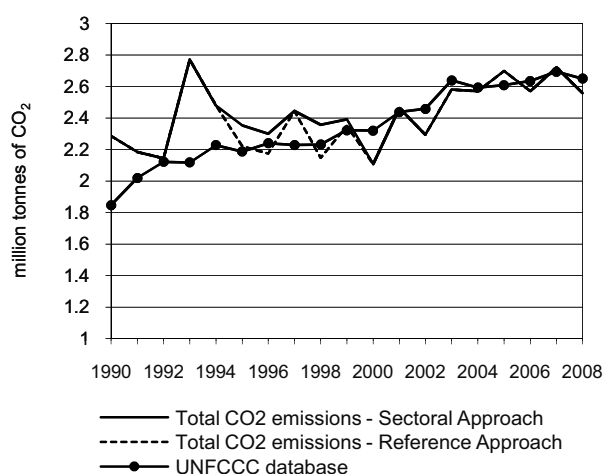


Figure 5. Electricity generation by fuel

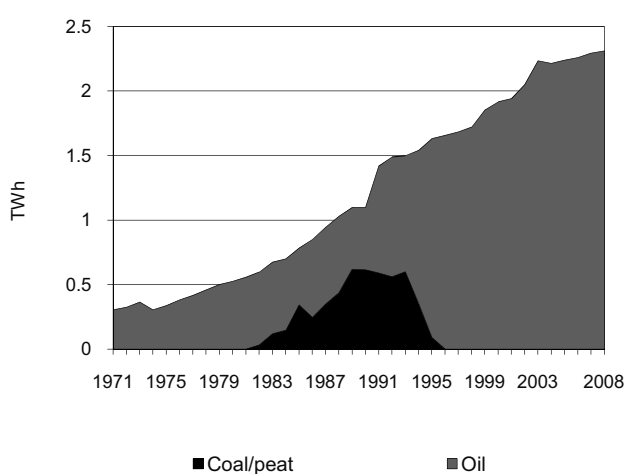
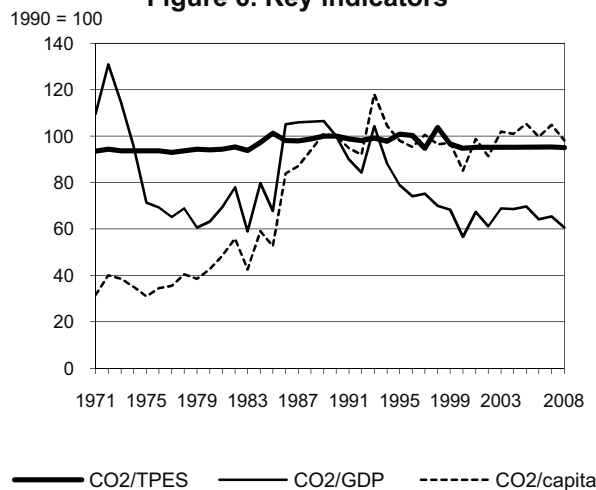


Figure 6. Key indicators



Malta

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.29	2.35	2.11	2.70	2.57	2.72	2.56	12.0%
CO ₂ Reference Approach (Mt of CO ₂)	2.29	2.22	2.11	2.70	2.57	2.72	2.56	12.0%
TPES (PJ)	29	30	28	36	34	36	34	17.8%
TPES (Mtoe)	0.69	0.71	0.68	0.86	0.82	0.87	0.82	17.8%
GDP (billion 2000 USD)	2.39	3.12	3.89	4.05	4.19	4.35	4.42	84.7%
GDP PPP (billion 2000 USD)	4.25	5.54	6.91	7.20	7.44	7.72	7.84	84.7%
Population (millions)	0.36	0.38	0.39	0.40	0.41	0.41	0.41	14.2%
CO ₂ / TPES (t CO ₂ per TJ)	78.6	79.2	74.5	74.8	74.8	74.9	74.7	-5.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.96	0.75	0.54	0.67	0.61	0.63	0.58	-39.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.54	0.42	0.30	0.37	0.35	0.35	0.33	-39.4%
CO ₂ / population (t CO ₂ per capita)	6.35	6.22	5.40	6.68	6.33	6.65	6.23	-1.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	2.56	-	-	2.56	12.0%
Main activity producer elec. and heat	-	1.96	-	-	1.96	12.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	-	-	-	-	-	-100.0%
Transport	-	0.53	-	-	0.53	19.5%
<i>of which: road</i>	-	0.53	-	-	0.53	19.5%
Other	-	0.06	-	-	0.06	-31.1%
<i>of which: residential</i>	-	0.06	-	-	0.06	-31.1%
Reference Approach	-	2.56	-	-	2.56	12.0%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-	-	-	-	-
<i>Memo: international marine bunkers</i>	-	2.89	-	-	2.89	+
<i>Memo: international aviation bunkers</i>	-	0.38	-	-	0.38	78.6%

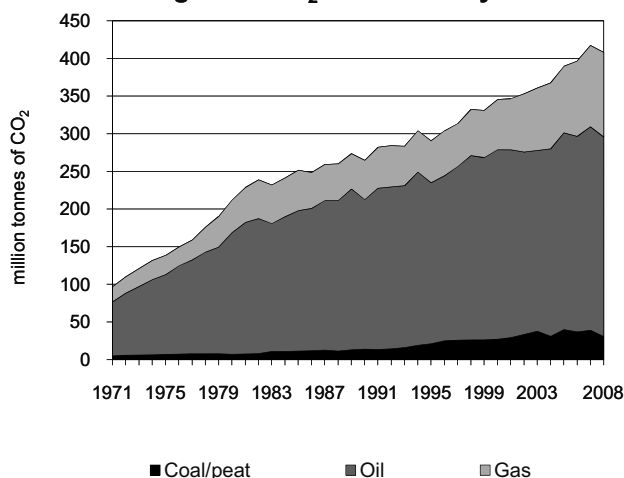
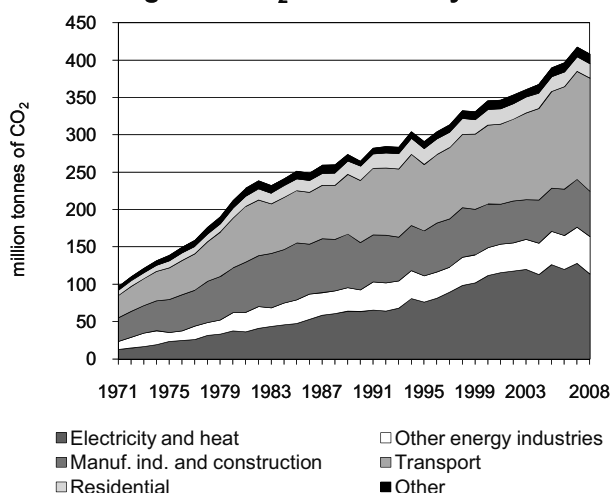
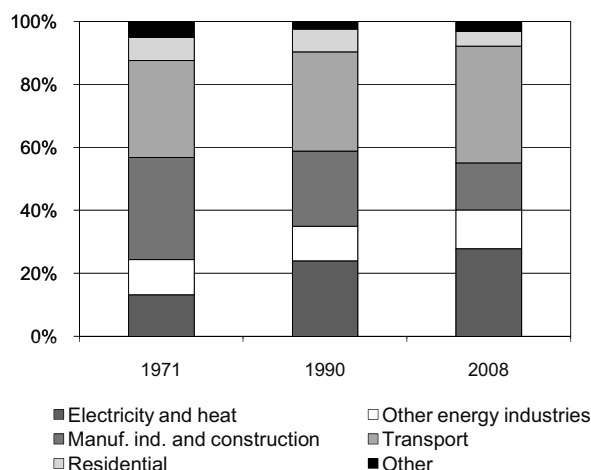
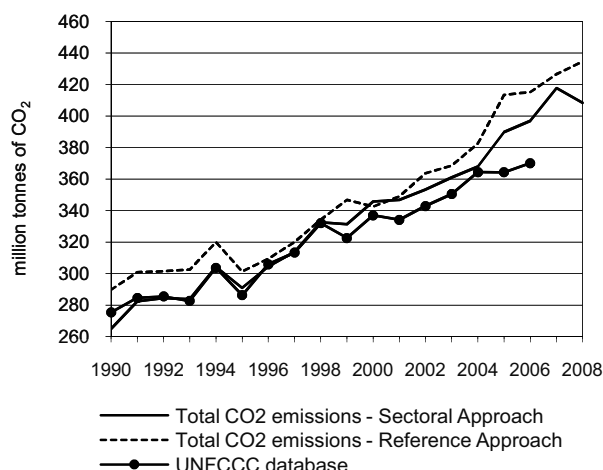
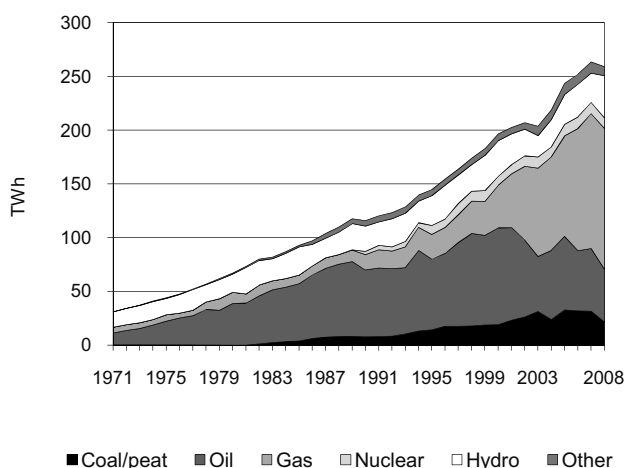
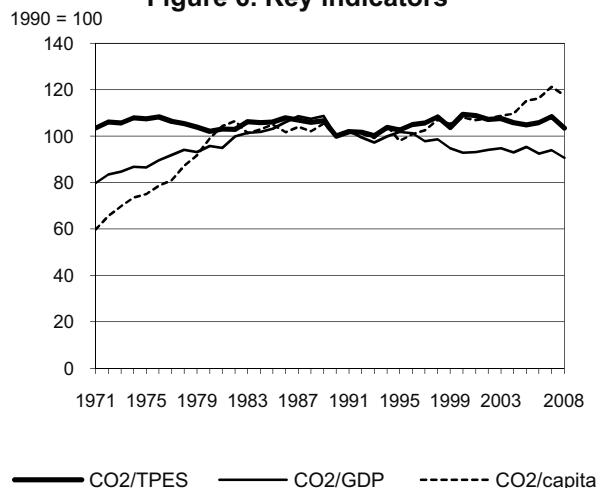
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.96	90.9%	66.5	66.5
Road - oil	0.53	19.5%	18.1	84.5
Residential - oil	0.06	-31.1%	2.1	86.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>2.56</i>	<i>12.0%</i>	<i>86.7</i>	<i>86.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Mexico

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Mexico

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	264.86	290.94	345.77	389.75	396.89	417.58	408.30	54.2%
CO ₂ Reference Approach (Mt of CO ₂)	289.76	301.22	342.49	413.34	415.13	426.65	434.42	49.9%
TPES (PJ)	5 077	5 436	6 062	7 123	7 188	7 381	7 562	48.9%
TPES (Mtoe)	121.27	129.83	144.79	170.14	171.69	176.29	180.61	48.9%
GDP (billion 2000 USD)	452.56	488.23	636.73	698.65	733.83	759.03	769.26	70.0%
GDP PPP (billion 2000 USD)	701.59	756.89	987.11	1 083.10	1 137.65	1 176.70	1 192.56	70.0%
Population (millions)	81.25	91.12	98.26	103.83	104.75	105.68	106.57	31.2%
CO ₂ / TPES (t CO ₂ per TJ)	52.2	53.5	57.0	54.7	55.2	56.6	54.0	3.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.59	0.60	0.54	0.56	0.54	0.55	0.53	-9.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.38	0.38	0.35	0.36	0.35	0.35	0.34	-9.3%
CO ₂ / population (t CO ₂ per capita)	3.26	3.19	3.52	3.75	3.79	3.95	3.83	17.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	30.86	264.98	112.46	-	408.30	54.2%
Main activity producer elec. and heat	20.39	31.74	48.24	-	100.38	57.8%
Unallocated autoproducers	1.11	5.57	6.85	-	13.54	x
Other energy industries	0.12	19.64	30.38	-	50.14	73.6%
Manufacturing industries and construction	9.24	26.81	24.73	-	60.77	-4.1%
Transport	-	151.34	0.03	-	151.37	81.7%
<i>of which: road</i>	-	146.77	0.03	-	146.80	83.6%
Other	-	29.88	2.22	-	32.10	25.1%
<i>of which: residential</i>	-	17.57	1.72	-	19.29	0.7%
Reference Approach	29.94	292.02	112.46	-	434.42	49.9%
Diff. due to losses and/or transformation	- 0.32	20.58	-	-	20.26	
Statistical differences	- 0.59	6.45	- 0.00	-	5.86	
<i>Memo: international marine bunkers</i>	-	3.18	-	-	3.18	..
<i>Memo: international aviation bunkers</i>	-	9.42	-	-	9.42	80.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	146.77	83.5%	23.2	23.2
Main activity prod. elec. and heat - gas	48.24	501.6%	7.6	30.9
Main activity prod. elec. and heat - oil	31.74	-34.5%	5.0	35.9
Other energy industries - gas	30.38	135.1%	4.8	40.7
Manufacturing industries - oil	26.81	-1.5%	4.2	44.9
Manufacturing industries - gas	24.73	-15.5%	3.9	48.8
Main activity prod. elec. and heat - coal/peat	20.39	184.8%	3.2	52.1
Other energy industries - oil	19.64	24.4%	3.1	55.2
Residential - oil	17.57	1.7%	2.8	57.9
Non-specified other - oil	12.31	89.3%	1.9	59.9
Manufacturing industries - coal/peat	9.24	33.8%	1.5	61.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>408.30</i>	<i>54.2%</i>	<i>64.6</i>	<i>64.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Republic of Moldova

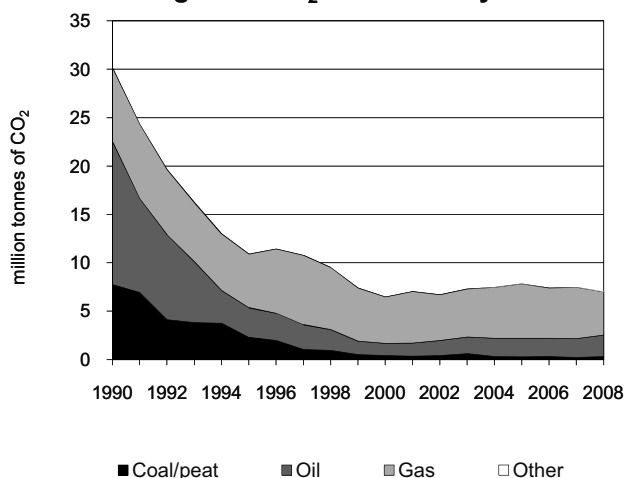
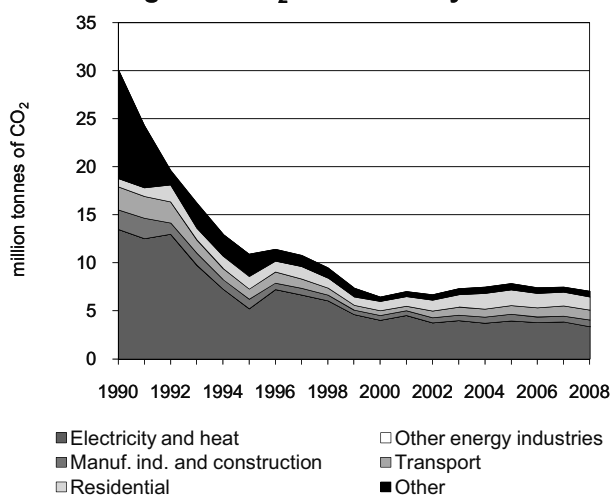
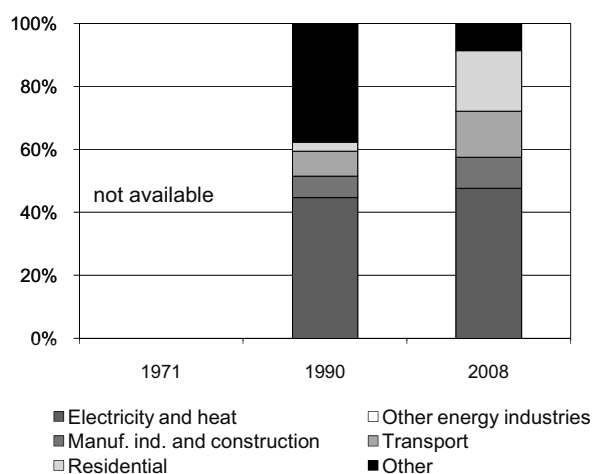
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

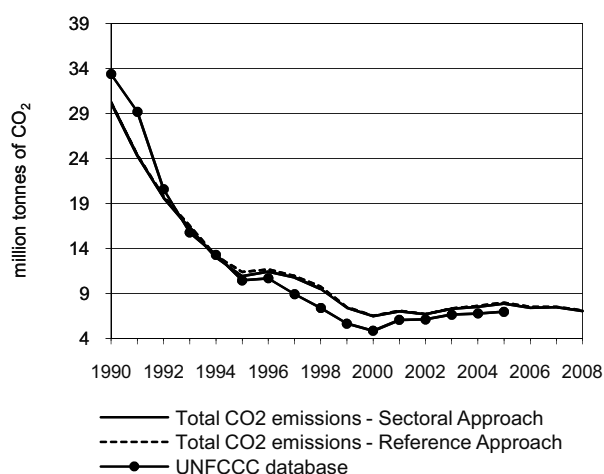


Figure 5. Electricity generation by fuel

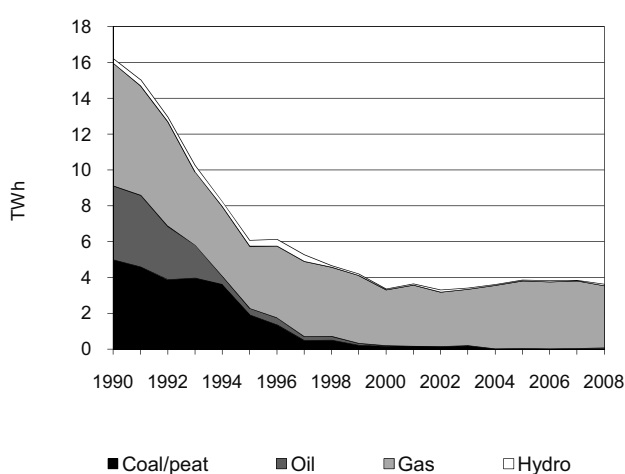
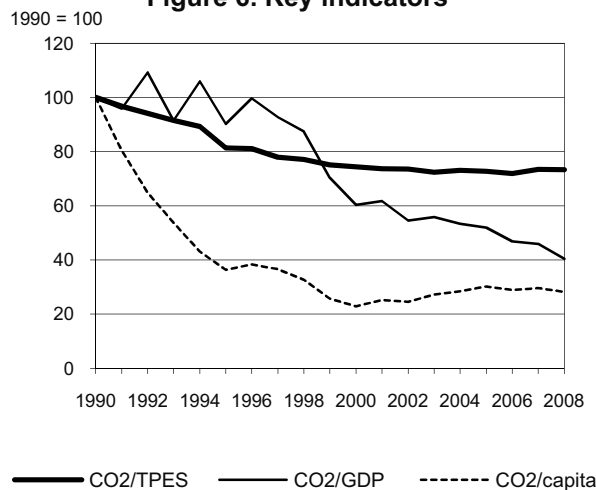


Figure 6. Key indicators



Republic of Moldova

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	30.18	10.92	6.48	7.86	7.42	7.50	7.07	-76.6%
CO ₂ Reference Approach (Mt of CO ₂)	30.24	11.38	6.54	7.99	7.54	7.52	7.13	-76.4%
TPES (PJ)	413	184	119	148	141	140	132	-68.1%
TPES (Mtoe)	9.87	4.39	2.85	3.54	3.38	3.34	3.15	-68.1%
GDP (billion 2000 USD)	3.62	1.45	1.29	1.81	1.90	1.96	2.10	-42.0%
GDP PPP (billion 2000 USD)	15.86	6.36	5.65	7.95	8.33	8.58	9.20	-42.0%
Population (millions)	4.36	4.34	4.10	3.76	3.71	3.67	3.63	-16.8%
CO ₂ / TPES (t CO ₂ per TJ)	73.1	59.4	54.4	53.1	52.5	53.7	53.6	-26.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	8.34	7.52	5.03	4.33	3.91	3.83	3.37	-59.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.90	1.72	1.15	0.99	0.89	0.87	0.77	-59.6%
CO ₂ / population (t CO ₂ per capita)	6.92	2.52	1.58	2.09	2.00	2.05	1.95	-71.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.35	2.20	4.49	0.04	7.07	-76.6%
Main activity producer elec. and heat	-	0.04	3.05	-	3.10	-77.1%
Unallocated autoproducers	0.01	0.03	0.19	0.04	0.27	x
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.15	0.08	0.47	-	0.69	-65.8%
Transport	-	1.01	0.03	-	1.04	-56.7%
<i>of which: road</i>	-	0.90	0.02	-	0.92	-60.9%
Other	0.19	1.03	0.74	-	1.97	-83.9%
<i>of which: residential</i>	-	0.82	0.53	-	1.36	54.8%
Reference Approach	0.35	2.11	4.63	0.04	7.13	-76.4%
Diff. due to losses and/or transformation	-	-	0.15	-	0.15	
Statistical differences	- 0.00	- 0.09	-	-	- 0.09	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.04	-	-	0.04	-83.3%

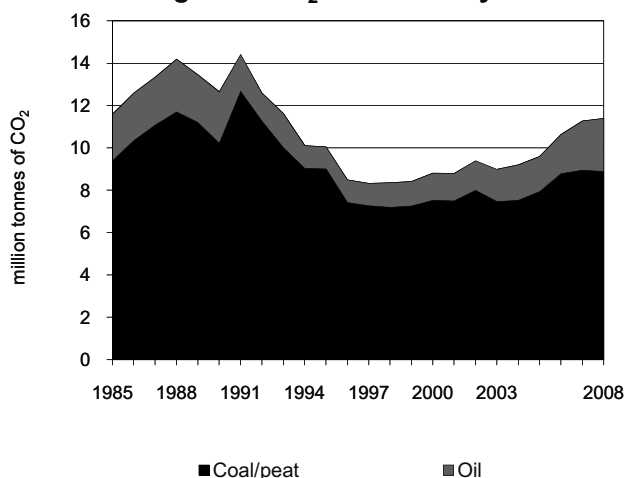
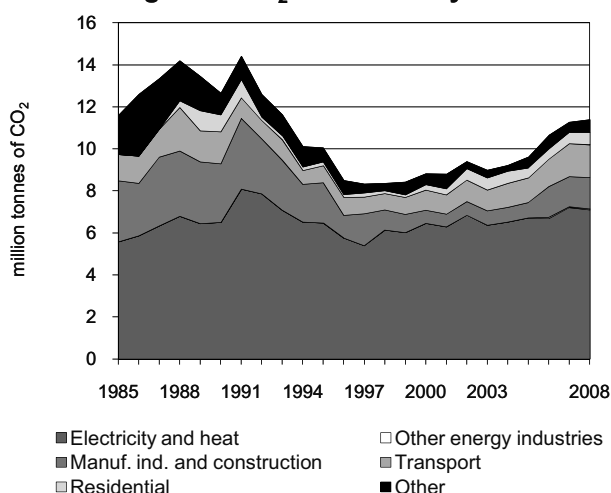
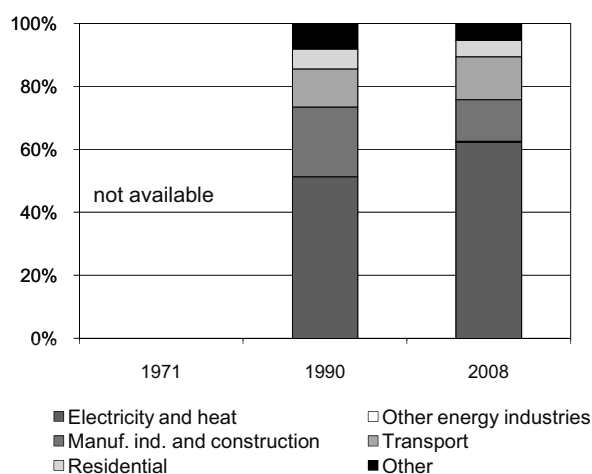
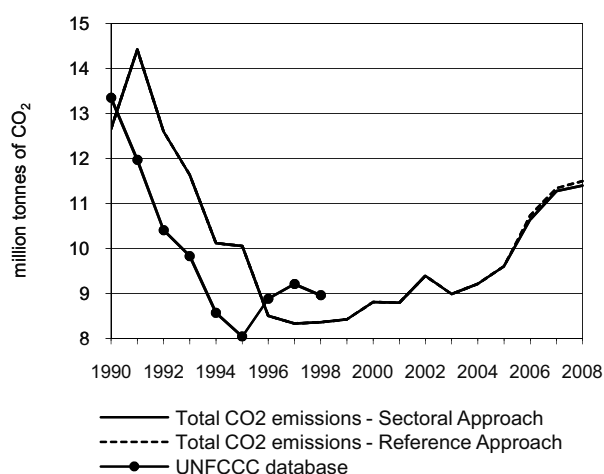
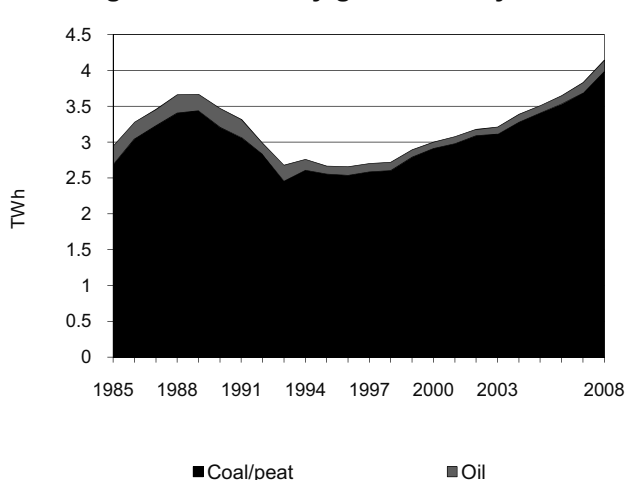
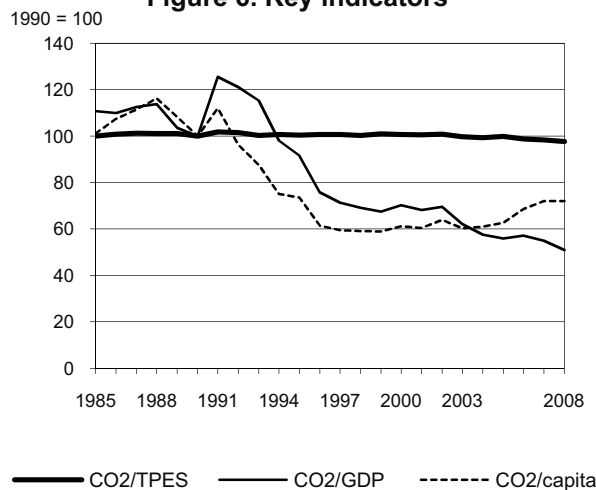
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	3.05	-42.4%	25.5	25.5
Road - oil	0.90	-61.3%	7.5	33.1
Residential - oil	0.82	125.7%	6.9	39.9
Residential - gas	0.53	4.1%	4.4	44.4
Manufacturing industries - gas	0.47	-62.0%	3.9	48.3
Non-specified other - gas	0.21	-59.5%	1.8	50.0
Non-specified other - oil	0.21	-97.5%	1.7	51.8
Non-specified other sectors - coal/peat	0.19	-92.5%	1.6	53.4
Unallocated autoproducers - gas	0.19	x	1.6	55.0
Manufacturing industries - coal/peat	0.15	-81.7%	1.2	56.2
Other transport - oil	0.10	221.0%	0.8	57.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.07</i>	<i>-76.6%</i>	<i>59.0</i>	<i>59.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Mongolia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Mongolia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	12.66	10.05	8.81	9.61	10.64	11.28	11.40	-9.9%
CO ₂ Reference Approach (Mt of CO ₂)	12.66	10.05	8.81	9.61	10.73	11.34	11.50	-9.1%
TPES (PJ)	143	113	99	109	122	130	132	-7.8%
TPES (Mtoe)	3.42	2.70	2.36	2.60	2.91	3.09	3.15	-7.8%
GDP (billion 2000 USD)	1.10	0.95	1.09	1.49	1.62	1.78	1.94	76.7%
GDP PPP (billion 2000 USD)	4.27	3.70	4.23	5.78	6.28	6.92	7.54	76.7%
Population (millions)	2.11	2.28	2.40	2.55	2.59	2.61	2.63	25.0%
CO ₂ / TPES (t CO ₂ per TJ)	88.5	88.8	89.0	88.4	87.4	87.1	86.4	-2.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	11.52	10.55	8.09	6.44	6.57	6.32	5.87	-49.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.97	2.72	2.09	1.66	1.70	1.63	1.51	-49.0%
CO ₂ / population (t CO ₂ per capita)	6.01	4.42	3.68	3.76	4.12	4.32	4.33	-27.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	8.89	2.51	-	-	11.40	-9.9%
Main activity producer elec. and heat	6.93	0.17	-	-	7.10	9.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	0.04	-	-	-	0.04	x
Manufacturing industries and construction	0.77	0.73	-	-	1.50	-46.3%
Transport	0.06	1.50	-	-	1.55	1.9%
<i>of which: road</i>	-	1.19	-	-	1.19	8.1%
Other	1.09	0.11	-	-	1.20	-34.5%
<i>of which: residential</i>	0.58	-	-	-	0.58	-28.0%
Reference Approach	8.94	2.57	-	-	11.50	-9.1%
Diff. due to losses and/or transformation	0.05	-	-	-	0.05	
Statistical differences	-	0.05	-	-	0.05	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.10	-	-	0.10	700.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	6.93	12.2%	31.7	31.7
Road - oil	1.19	8.1%	5.5	37.2
Manufacturing industries - coal/peat	0.77	-64.1%	3.5	40.7
Manufacturing industries - oil	0.73	12.9%	3.3	44.1
Residential - coal/peat	0.58	-28.0%	2.7	46.7
Non-specified other sectors - coal/peat	0.51	-45.3%	2.3	49.0
Other transport - oil	0.30	17.3%	1.4	50.4
Main activity prod. elec. and heat - oil	0.17	-46.3%	0.8	51.2
Non-specified other - oil	0.11	16.7%	0.5	51.7
Other transport - coal/peat	0.06	-64.0%	0.3	52.0
Other energy industries - coal/peat	0.04	x	0.2	52.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>11.40</i>	<i>-9.9%</i>	<i>52.2</i>	<i>52.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Morocco

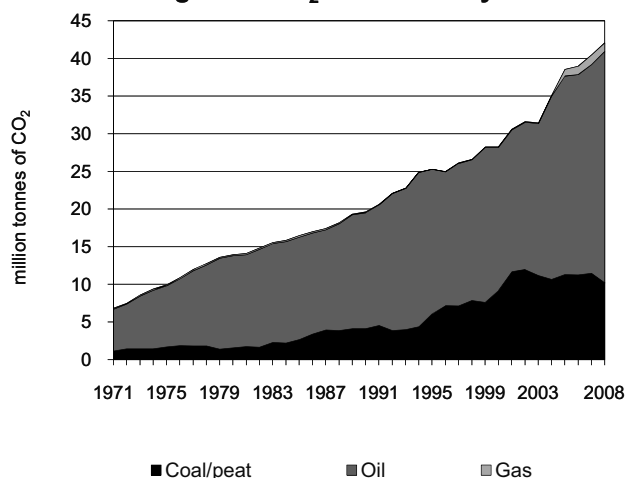
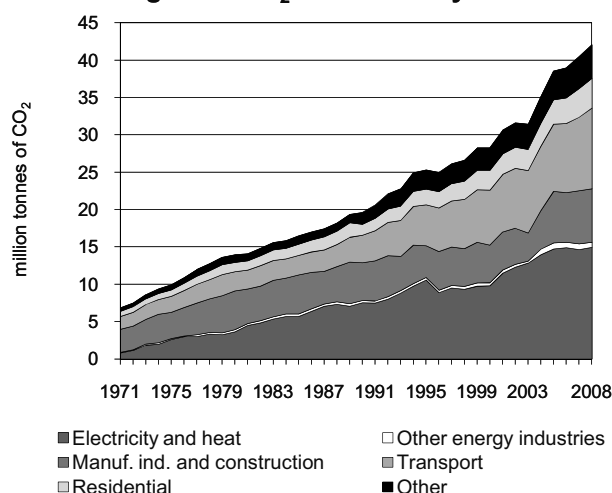
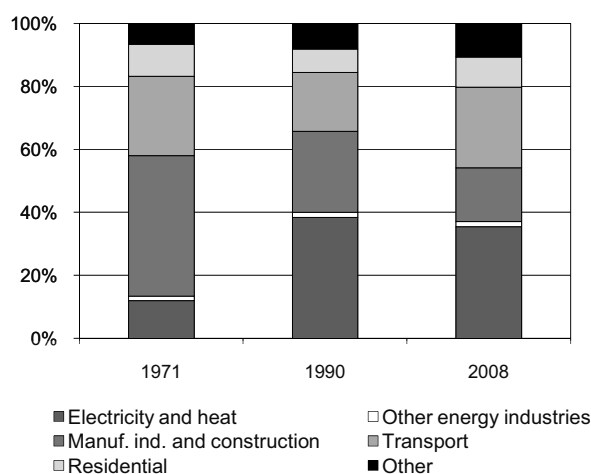
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

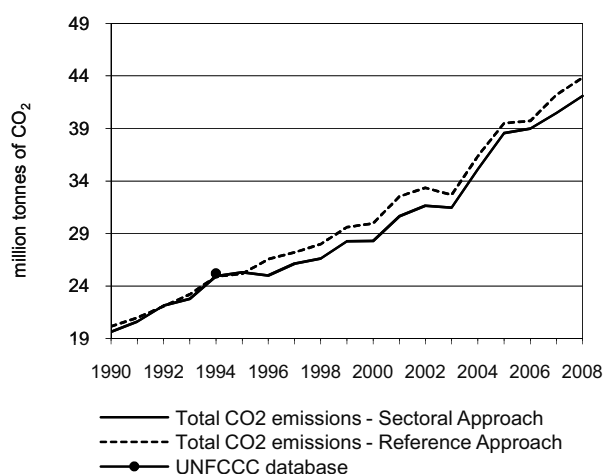


Figure 5. Electricity generation by fuel

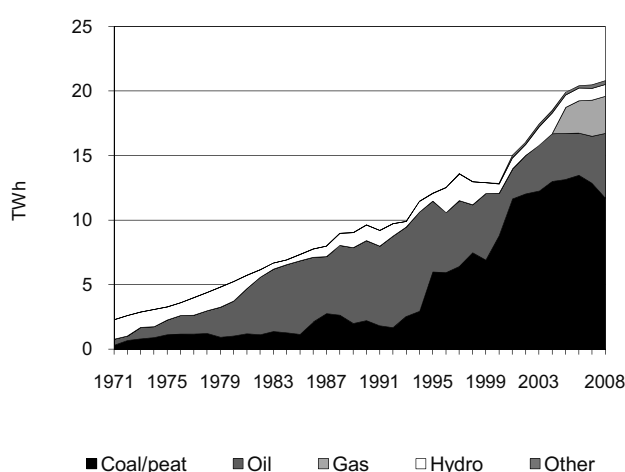
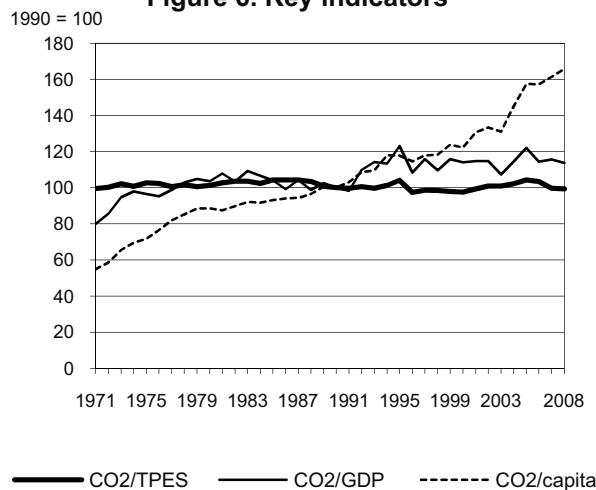


Figure 6. Key indicators



Morocco

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	19.64	25.32	28.29	38.57	38.98	40.48	42.09	114.3%
CO ₂ Reference Approach (Mt of CO ₂)	20.16	25.17	29.96	39.52	39.73	42.23	43.82	117.4%
TPES (PJ)	291	360	429	547	558	601	627	115.8%
TPES (Mtoe)	6.94	8.59	10.24	13.07	13.32	14.35	14.98	115.8%
GDP (billion 2000 USD)	29.31	30.69	37.02	47.20	50.86	52.24	55.28	88.6%
GDP PPP (billion 2000 USD)	88.54	92.69	111.82	142.57	153.63	157.80	166.96	88.6%
Population (millions)	24.17	26.44	28.47	30.14	30.50	30.86	31.23	29.2%
CO ₂ / TPES (t CO ₂ per TJ)	67.6	70.4	66.0	70.5	69.9	67.4	67.1	-0.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.67	0.83	0.76	0.82	0.77	0.77	0.76	13.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.22	0.27	0.25	0.27	0.25	0.26	0.25	13.7%
CO ₂ / population (t CO ₂ per capita)	0.81	0.96	0.99	1.28	1.28	1.31	1.35	65.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	10.22	30.76	1.11	-	42.09	114.3%
Main activity producer elec. and heat	10.08	3.20	1.00	-	14.28	120.2%
Unallocated autoproducers	-	0.66	-	-	0.66	-37.0%
Other energy industries	-	0.68	-	-	0.68	115.0%
Manufacturing industries and construction	0.14	6.91	0.10	-	7.15	41.5%
Transport	-	10.81	-	-	10.81	193.6%
<i>of which: road</i>	-	10.81	-	-	10.81	193.6%
Other	-	8.49	-	-	8.49	178.7%
<i>of which: residential</i>	-	3.98	-	-	3.98	175.7%
Reference Approach	11.43	31.28	1.11	-	43.82	117.4%
Diff. due to losses and/or transformation	-	0.08	-	-	0.08	
Statistical differences	1.22	0.44	0.00	-	1.66	
<i>Memo: international marine bunkers</i>	-	0.04	-	-	0.04	-34.9%
<i>Memo: international aviation bunkers</i>	-	1.53	-	-	1.53	94.4%

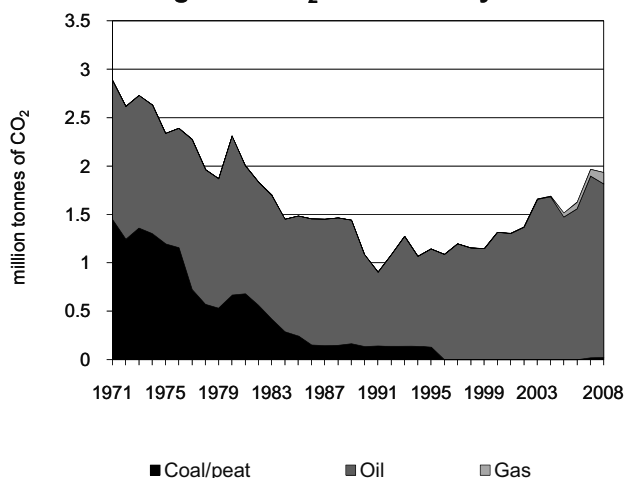
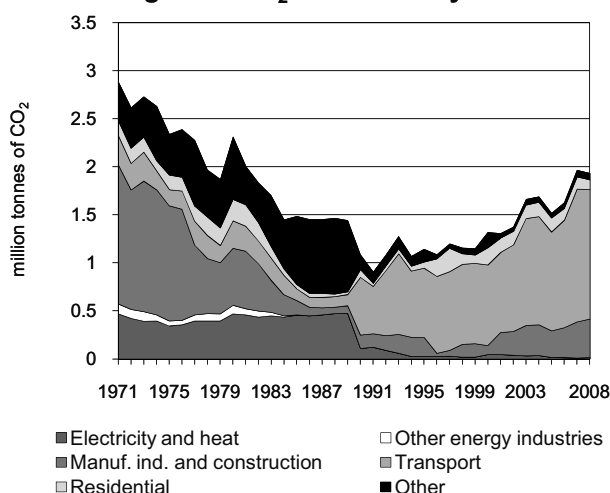
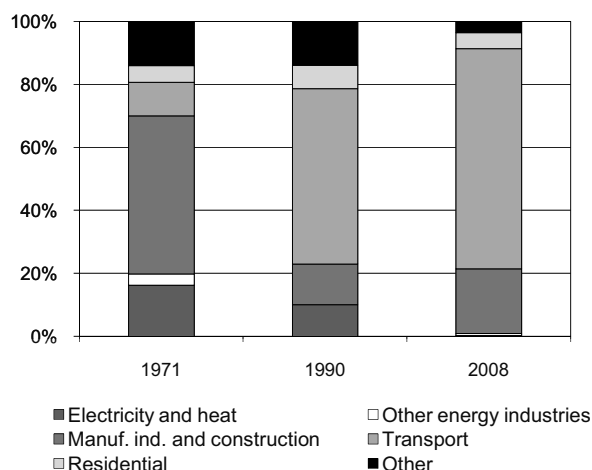
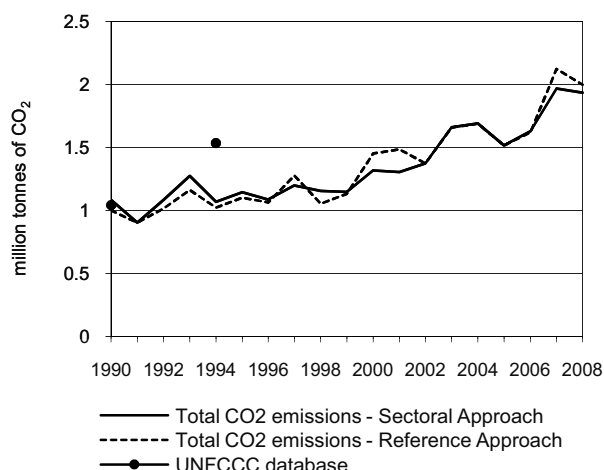
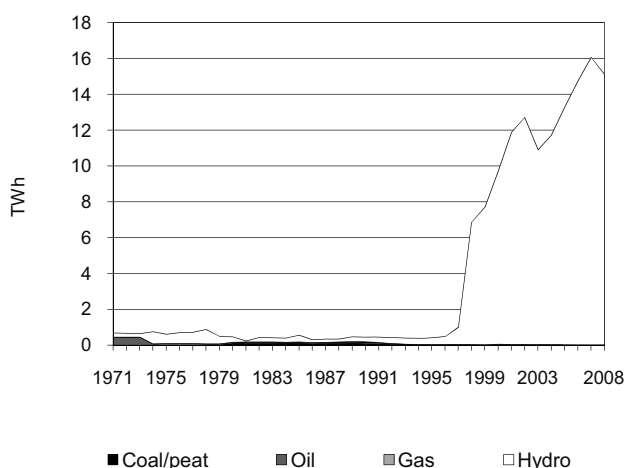
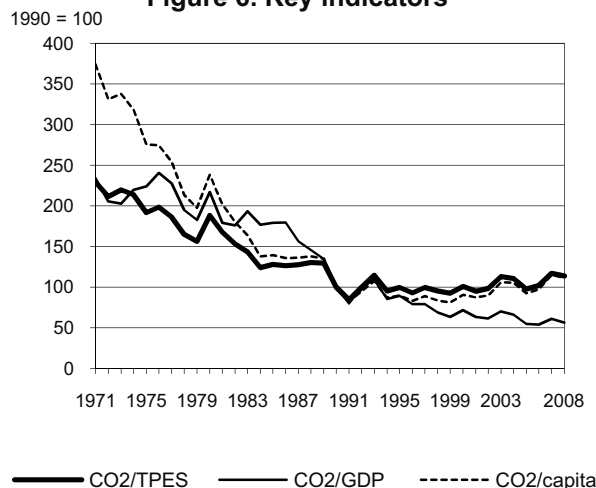
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	10.81	193.6%	16.6	16.6
Main activity prod. elec. and heat - coal/peat	10.08	266.8%	15.5	32.1
Manufacturing industries - oil	6.91	93.5%	10.6	42.7
Non-specified other - oil	4.52	181.4%	6.9	49.6
Residential - oil	3.98	175.7%	6.1	55.7
Main activity prod. elec. and heat - oil	3.20	-14.5%	4.9	60.6
Main activity prod. elec. and heat - gas	1.00	x	1.5	62.2
Other energy industries - oil	0.68	115.0%	1.0	63.2
Unallocated autoproducers - oil	0.66	-37.0%	1.0	64.3
Manufacturing industries - coal/peat	0.14	-90.1%	0.2	64.5
Manufacturing industries - gas	0.10	1.8%	0.2	64.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>42.09</i>	<i>114.3%</i>	<i>64.6</i>	<i>64.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Mozambique

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Mozambique

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1.08	1.14	1.32	1.52	1.63	1.97	1.93	78.6%
CO ₂ Reference Approach (Mt of CO ₂)	1.00	1.10	1.45	1.51	1.62	2.12	2.00	99.7%
TPES (PJ)	248	263	300	355	366	385	390	57.3%
TPES (Mtoe)	5.92	6.28	7.17	8.49	8.74	9.20	9.31	57.3%
GDP (billion 2000 USD)	2.50	2.96	4.25	6.41	6.97	7.46	7.94	217.8%
GDP PPP (billion 2000 USD)	9.47	11.23	16.10	24.30	26.41	28.27	30.10	217.8%
Population (millions)	13.54	15.94	18.19	20.53	20.97	21.37	21.78	60.8%
CO ₂ / TPES (t CO ₂ per TJ)	4.4	4.3	4.4	4.3	4.4	5.1	5.0	13.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.43	0.39	0.31	0.24	0.23	0.26	0.24	-43.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.11	0.10	0.08	0.06	0.06	0.07	0.06	-43.8%
CO ₂ / population (t CO ₂ per capita)	0.08	0.07	0.07	0.07	0.08	0.09	0.09	11.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.02	1.79	0.12	-	1.93	78.6%
Main activity producer elec. and heat	-	-	0.01	-	0.01	-94.5%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	0.01	-	-	-	0.01	x
Manufacturing industries and construction	0.01	0.27	0.11	-	0.40	185.3%
Transport	-	1.35	0.00	-	1.35	124.5%
<i>of which: road</i>	-	1.23	0.00	-	1.23	134.1%
Other	-	0.17	-	-	0.17	-28.0%
<i>of which: residential</i>	-	0.10	-	-	0.10	20.5%
Reference Approach	0.02	1.78	0.20	-	2.00	99.7%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	-0.02	0.08	-	0.06	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.18	-	-	0.18	41.5%

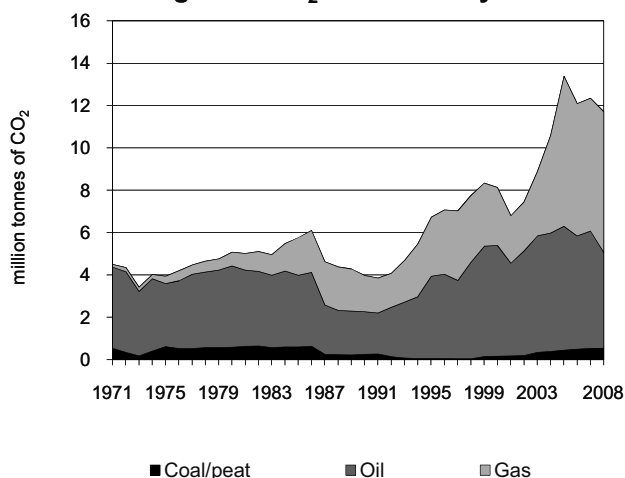
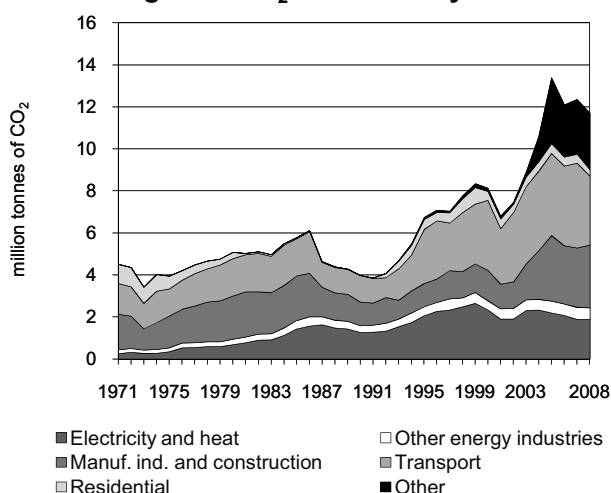
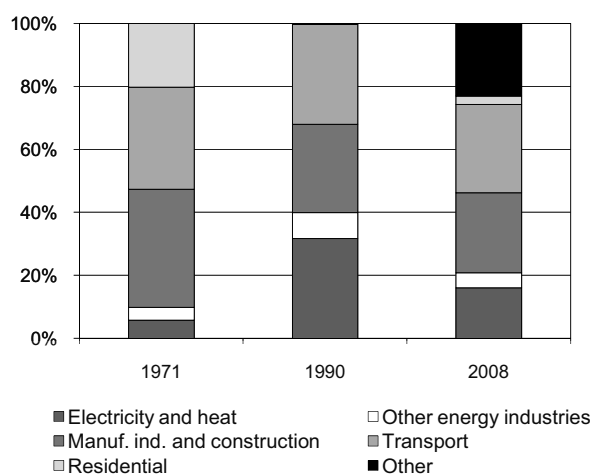
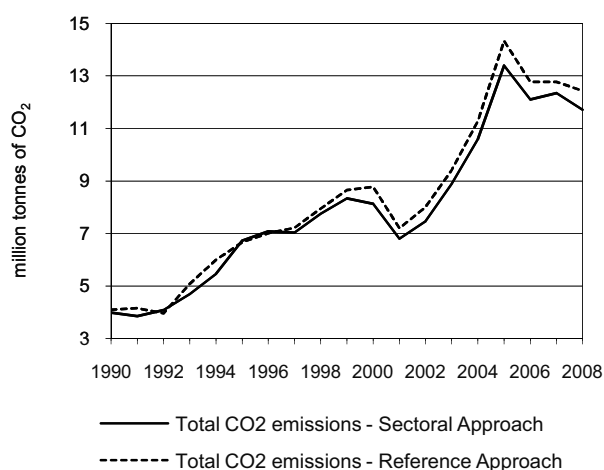
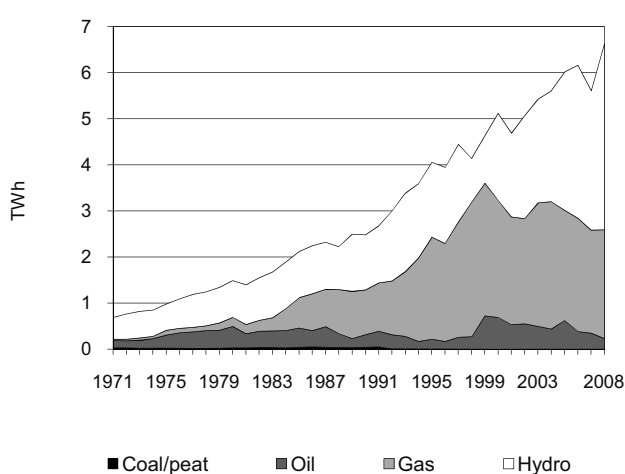
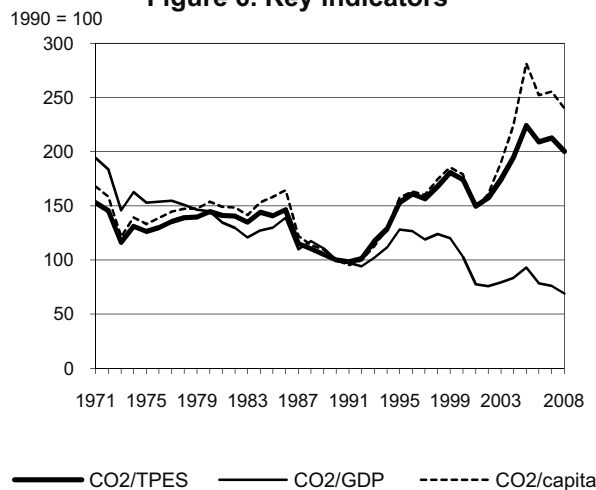
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	1.23	134.0%	4.6	4.6
Manufacturing industries - oil	0.27	350.5%	1.0	5.6
Other transport - oil	0.12	58.3%	0.5	6.1
Manufacturing industries - gas	0.11	x	0.4	6.5
Residential - oil	0.10	20.5%	0.4	6.9
Non-specified other - oil	0.07	-53.8%	0.3	7.1
Other energy industries - coal/peat	0.01	x	0.0	7.2
Manufacturing industries - coal/peat	0.01	-85.3%	0.0	7.2
Main activity prod. elec. and heat - gas	0.01	x	0.0	7.2
Road - gas	0.00	x	0.0	7.2
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>1.93</i>	<i>78.6%</i>	<i>7.2</i>	<i>7.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Myanmar

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Myanmar

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3.98	6.73	8.13	13.39	12.10	12.35	11.72	194.3%
CO ₂ Reference Approach (Mt of CO ₂)	4.10	6.67	8.77	14.33	12.77	12.78	12.44	203.6%
TPES (PJ)	446	493	523	670	649	651	656	47.0%
TPES (Mtoe)	10.66	11.77	12.50	16.00	15.50	15.56	15.67	47.0%
GDP (billion 2000 USD)	4.49	5.94	8.91	16.25	17.38	18.33	19.16	326.4%
GDP PPP (billion 2000 USD)	27.18	35.89	53.85	98.24	105.11	110.85	115.88	326.4%
Population (millions)	40.15	43.13	45.88	47.97	48.38	48.78	49.19	22.5%
CO ₂ / TPES (t CO ₂ per TJ)	8.9	13.7	15.5	20.0	18.6	19.0	17.9	100.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.89	1.13	0.91	0.82	0.70	0.67	0.61	-31.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.15	0.19	0.15	0.14	0.12	0.11	0.10	-31.0%
CO ₂ / population (t CO ₂ per capita)	0.10	0.16	0.18	0.28	0.25	0.25	0.24	140.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.54	4.53	6.65	-	11.72	194.3%
Main activity producer elec. and heat	-	0.18	1.71	-	1.89	49.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	0.20	0.35	-	0.55	67.4%
Manufacturing industries and construction	0.44	0.59	1.95	-	2.98	166.7%
Transport	-	3.13	0.16	-	3.29	161.0%
<i>of which: road</i>	-	3.02	0.16	-	3.19	152.7%
Other	0.10	0.44	2.47	-	3.01	+
<i>of which: residential</i>	-	0.30	-	-	0.30	+
Reference Approach	0.54	4.49	7.41	-	12.44	203.6%
Diff. due to losses and/or transformation	-	0.15	0.76	-	0.91	
Statistical differences	-	- 0.20	-	-	- 0.20	
<i>Memo: international marine bunkers</i>	-	0.01	-	-	0.01	x
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	114.3%

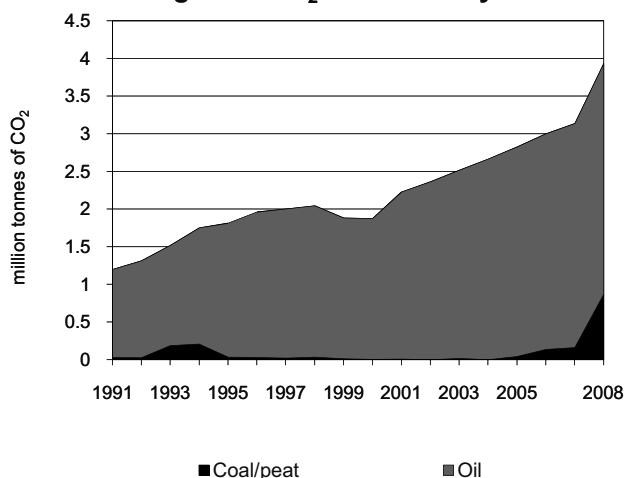
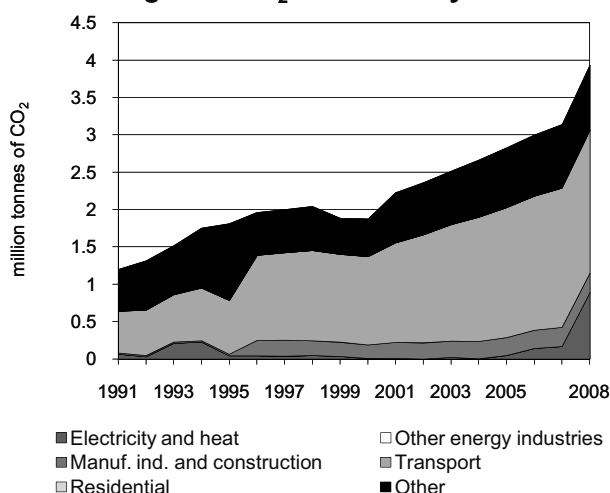
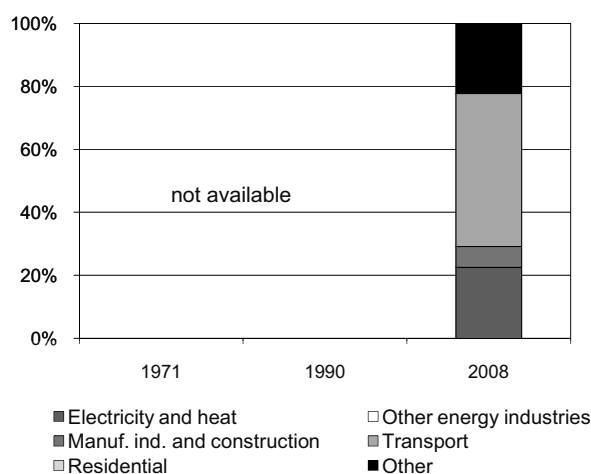
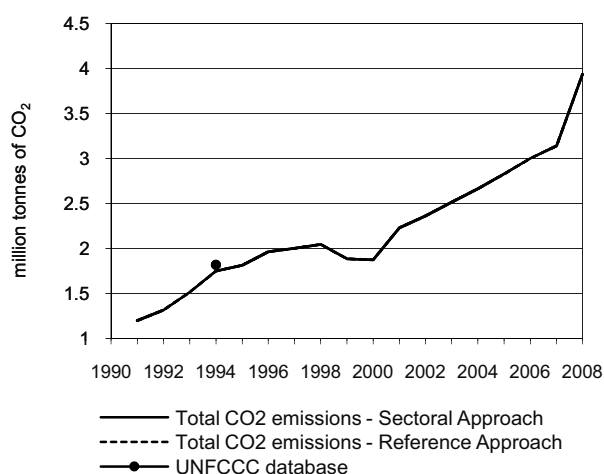
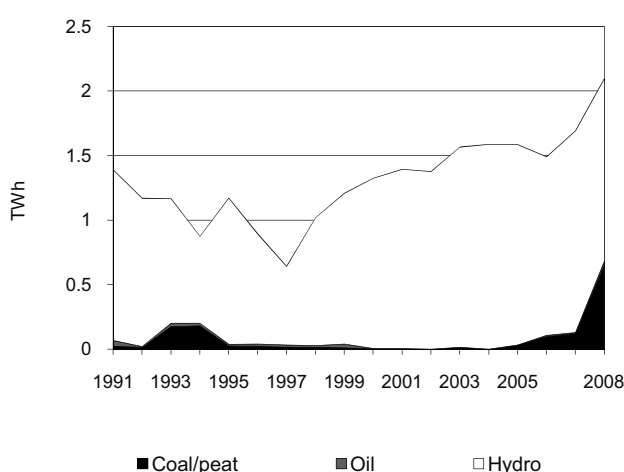
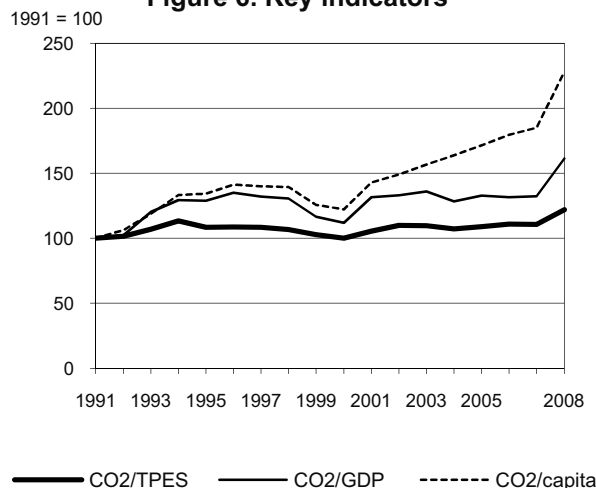
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	3.02	140.2%	2.3	2.3
Non-specified other - gas	2.47	x	1.9	4.2
Manufacturing industries - gas	1.95	330.4%	1.5	5.7
Main activity prod. elec. and heat - gas	1.71	68.9%	1.3	7.1
Manufacturing industries - oil	0.59	30.8%	0.5	7.5
Manufacturing industries - coal/peat	0.44	104.5%	0.3	7.9
Other energy industries - gas	0.35	49.4%	0.3	8.1
Residential - oil	0.30	+	0.2	8.4
Other energy industries - oil	0.20	113.6%	0.2	8.5
Main activity prod. elec. and heat - oil	0.18	-12.1%	0.1	8.7
Road - gas	0.16	+	0.1	8.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>11.72</i>	<i>194.3%</i>	<i>9.0</i>	<i>9.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Namibia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Namibia *

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	..	1.81	1.87	2.83	3.00	3.14	3.93	..
CO ₂ Reference Approach (Mt of CO ₂)	..	1.81	1.87	2.83	3.00	3.14	3.93	..
TPES (PJ)	..	38	43	59	62	65	73	..
TPES (Mtoe)	..	0.91	1.02	1.41	1.47	1.54	1.75	..
GDP (billion 2000 USD)	..	3.29	3.91	4.97	5.33	5.54	5.69	..
GDP PPP (billion 2000 USD)	..	10.66	12.66	16.11	17.26	17.96	18.44	..
Population (millions)	..	1.66	1.88	2.02	2.05	2.08	2.11	..
CO ₂ / TPES (t CO ₂ per TJ)	..	47.7	44.0	47.9	48.8	48.7	53.6	..
CO ₂ / GDP (kg CO ₂ per 2000 USD)	..	0.55	0.48	0.57	0.56	0.57	0.69	..
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	..	0.17	0.15	0.18	0.17	0.17	0.21	..
CO ₂ / population (t CO ₂ per capita)	..	1.09	1.00	1.40	1.47	1.51	1.86	..

Ratios are based on the Sectoral Approach.

* Prior to 1991, data for Namibia were included in Other Africa.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach	0.87	3.07	-	-	3.93	..
Main activity producer elec. and heat	0.87	0.02	-	-	0.89	..
Unallocated autoproducers	-	-	-	-	-	..
Other energy industries	-	-	-	-	-	..
Manufacturing industries and construction	-	0.26	-	-	0.26	..
Transport	-	1.91	-	-	1.91	..
<i>of which: road</i>	-	1.71	-	-	1.71	..
Other	-	0.87	-	-	0.87	..
<i>of which: residential</i>	-	-	-	-	-	..
Reference Approach	0.87	3.07	-	-	3.93	..
Diff. due to losses and/or transformation	-	-	-	-	-	..
Statistical differences	-	0.00	-	-	0.00	..
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	..

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Road - oil	1.71	..	12.6	12.6
Non-specified other - oil	0.87	..	6.5	19.1
Main activity prod. elec. and heat - coal/peat	0.87	..	6.4	25.5
Manufacturing industries - oil	0.26	..	1.9	27.4
Other transport - oil	0.20	..	1.5	28.9
Main activity prod. elec. and heat - oil	0.02	..	0.1	29.1
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
-	-	..	-	-
<i>Memo: total CO₂ from fuel combustion</i>	3.93	..	29.1	29.1

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Nepal

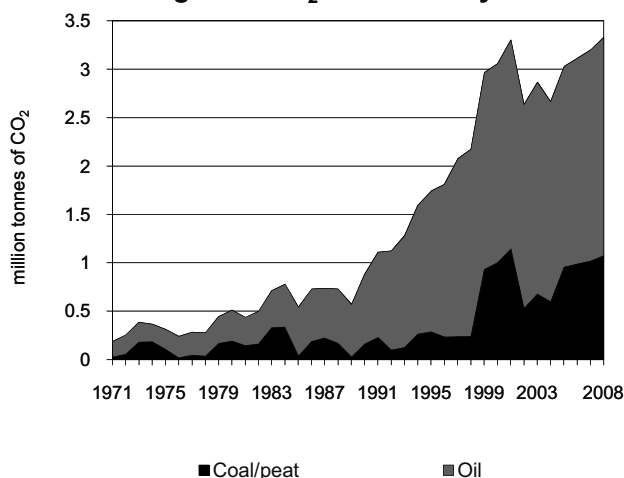
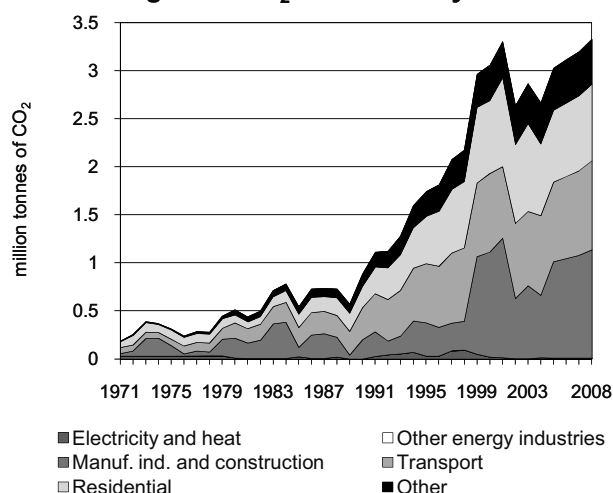
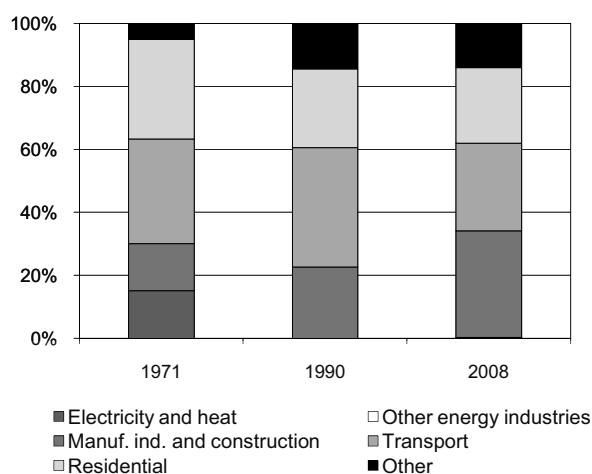
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

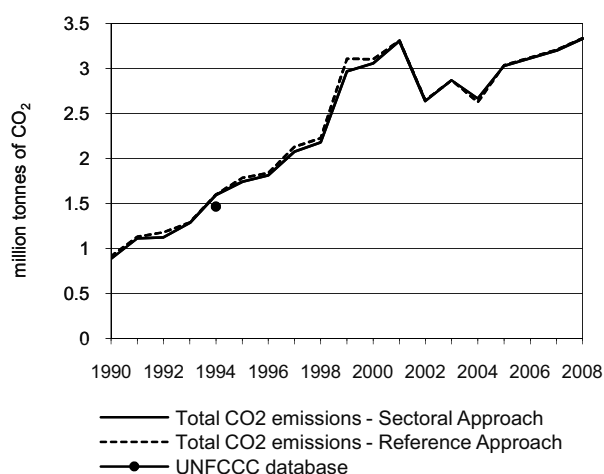


Figure 5. Electricity generation by fuel

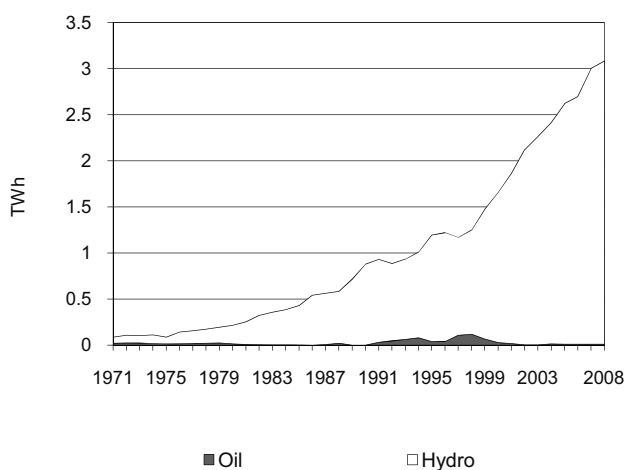
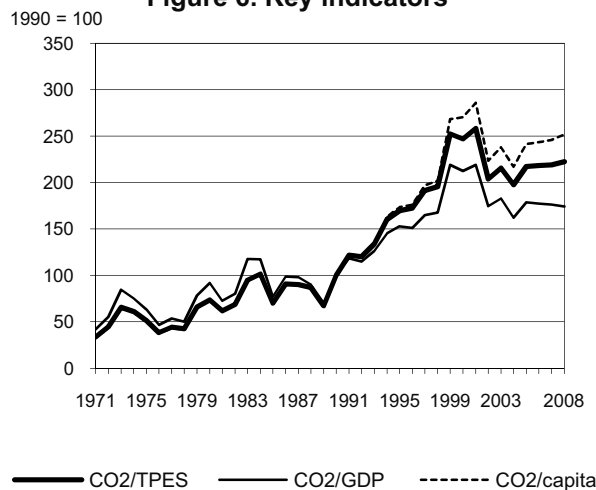


Figure 6. Key indicators



Nepal

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	0.88	1.74	3.06	3.03	3.11	3.20	3.33	276.6%
CO ₂ Reference Approach (Mt of CO ₂)	0.91	1.79	3.10	3.04	3.12	3.21	3.33	265.1%
TPES (PJ)	242	281	339	382	391	401	410	69.3%
TPES (Mtoe)	5.79	6.72	8.11	9.13	9.35	9.57	9.80	69.3%
GDP (billion 2000 USD)	3.38	4.35	5.49	6.47	6.71	6.93	7.31	116.4%
GDP PPP (billion 2000 USD)	19.92	25.65	32.41	38.16	39.58	40.91	43.09	116.4%
Population (millions)	19.11	21.67	24.42	27.09	27.64	28.11	28.58	49.5%
CO ₂ / TPES (t CO ₂ per TJ)	3.7	6.2	9.0	7.9	8.0	8.0	8.1	122.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.40	0.56	0.47	0.46	0.46	0.46	74.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.04	0.07	0.09	0.08	0.08	0.08	0.08	74.1%
CO ₂ / population (t CO ₂ per capita)	0.05	0.08	0.13	0.11	0.11	0.11	0.12	151.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	1.07	2.26	-	-	3.33	276.6%
Main activity producer elec. and heat	-	0.01	-	-	0.01	x
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	1.07	0.06	-	-	1.13	462.5%
Transport	-	0.93	-	-	0.93	177.1%
<i>of which: road</i>	-	0.93	-	-	0.93	177.1%
Other	0.00	1.26	-	-	1.27	262.6%
<i>of which: residential</i>	0.00	0.79	-	-	0.80	260.3%
Reference Approach	1.07	2.26	-	-	3.33	265.1%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.21	-	-	0.21	333.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	1.07	555.7%	3.3	3.3
Road - oil	0.93	177.1%	2.9	6.2
Residential - oil	0.79	258.2%	2.5	8.6
Non-specified other - oil	0.47	266.6%	1.4	10.1
Manufacturing industries - oil	0.06	52.8%	0.2	10.3
Main activity prod. elec. and heat - oil	0.01	x	0.0	10.3
Residential - coal/peat	0.00	x	0.0	10.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>3.33</i>	<i>276.6%</i>	<i>10.3</i>	<i>10.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Netherlands

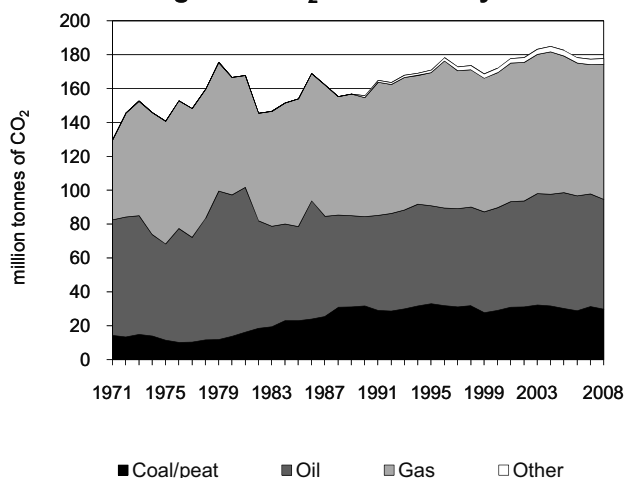
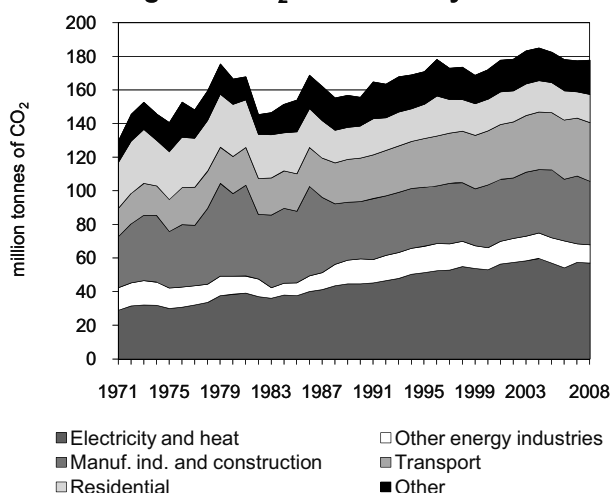
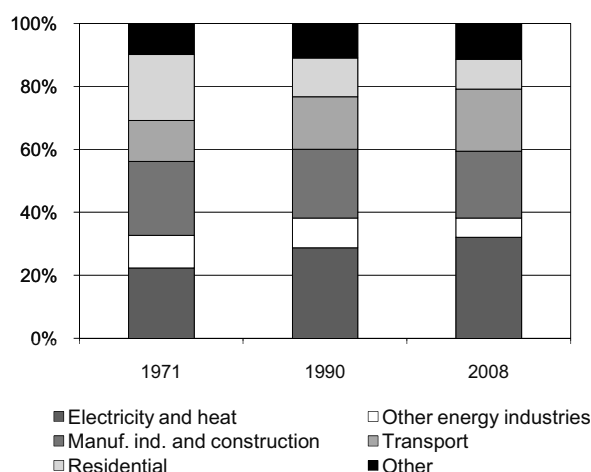
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

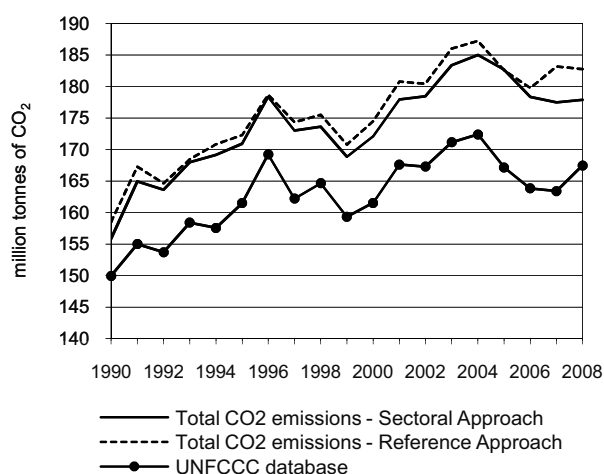


Figure 5. Electricity generation by fuel

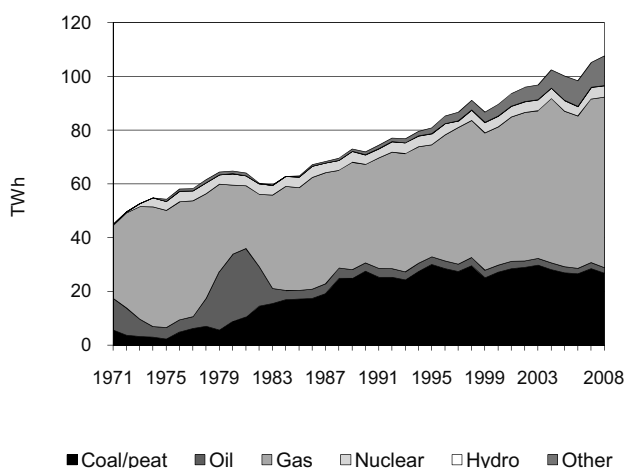
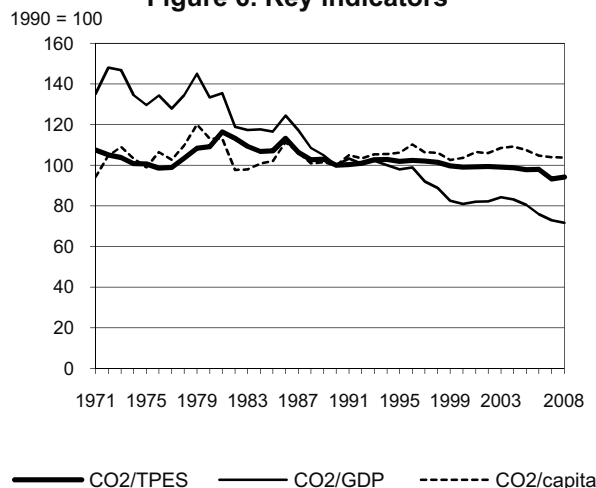


Figure 6. Key indicators



* The drop in the Reference Approach in 2008 is caused by a large statistical difference for naphtha.

Netherlands

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	155.85	170.94	172.09	182.66	178.32	177.46	177.86	14.1%
CO ₂ Reference Approach (Mt of CO ₂)	158.50	172.27	174.47	182.57	179.75	183.17	182.74	15.3%
TPES (PJ)	2 750	2 960	3 066	3 298	3 215	3 359	3 336	21.3%
TPES (Mtoe)	65.67	70.70	73.23	78.78	76.78	80.24	79.68	21.3%
GDP (billion 2000 USD)	281.96	315.81	385.08	411.17	425.12	440.49	449.28	59.3%
GDP PPP (billion 2000 USD)	342.86	384.02	468.25	499.98	516.95	535.63	546.32	59.3%
Population (millions)	14.95	15.46	15.92	16.32	16.34	16.38	16.44	10.0%
CO ₂ / TPES (t CO ₂ per TJ)	56.7	57.8	56.1	55.4	55.5	52.8	53.3	-5.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.54	0.45	0.44	0.42	0.40	0.40	-28.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.45	0.45	0.37	0.37	0.35	0.33	0.33	-28.4%
CO ₂ / population (t CO ₂ per capita)	10.43	11.06	10.81	11.19	10.91	10.84	10.82	3.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	29.80	64.89	79.72	3.45	177.86	14.1%
Main activity producer elec. and heat	24.56	0.34	22.77	-	47.67	26.4%
Unallocated autoproducers	0.07	1.32	4.65	3.45	9.49	34.0%
Other energy industries	0.62	6.80	3.43	-	10.85	-26.6%
Manufacturing industries and construction	4.48	17.85	15.45	-	37.78	10.8%
Transport	-	34.96	0.00	-	34.96	35.1%
<i>of which: road</i>	-	33.84	0.00	-	33.84	37.3%
Other	0.07	3.62	33.42	-	37.12	2.2%
<i>of which: residential</i>	0.04	0.18	16.60	-	16.82	-12.3%
Reference Approach	30.73	69.13	79.43	3.45	182.74	15.3%
Diff. due to losses and/or transformation	0.94	- 0.96	- 0.28	-	- 0.30	
Statistical differences	- 0.01	5.20	- 0.00	-	5.19	
<i>Memo: international marine bunkers</i>	-	48.58	-	-	48.58	41.7%
<i>Memo: international aviation bunkers</i>	-	11.02	-	-	11.02	156.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	33.84	37.3%	15.6	15.6
Main activity prod. elec. and heat - coal/peat	24.56	-0.2%	11.3	26.9
Main activity prod. elec. and heat - gas	22.77	75.7%	10.5	37.4
Manufacturing industries - oil	17.85	90.9%	8.2	45.6
Non-specified other - gas	16.82	19.4%	7.7	53.3
Residential - gas	16.60	-9.6%	7.6	60.9
Manufacturing industries - gas	15.45	-17.7%	7.1	68.1
Other energy industries - oil	6.80	-41.9%	3.1	71.2
Unallocated autoproducers - gas	4.65	27.3%	2.1	73.3
Manufacturing industries - coal/peat	4.48	-24.8%	2.1	75.4
Unallocated autoproducers - other	3.45	230.0%	1.6	77.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>177.86</i>	<i>14.1%</i>	<i>81.8</i>	<i>81.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Netherlands Antilles

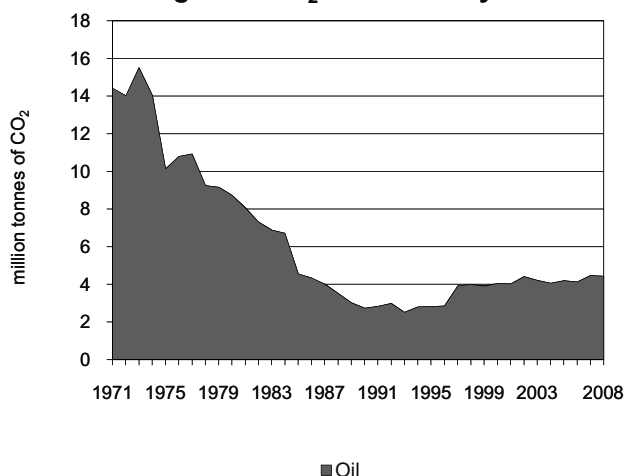
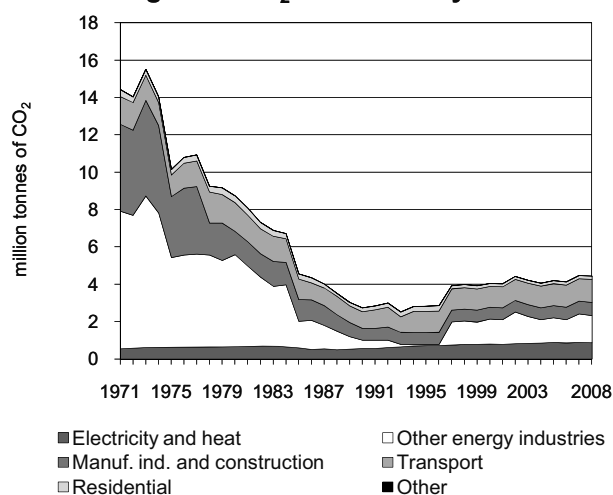
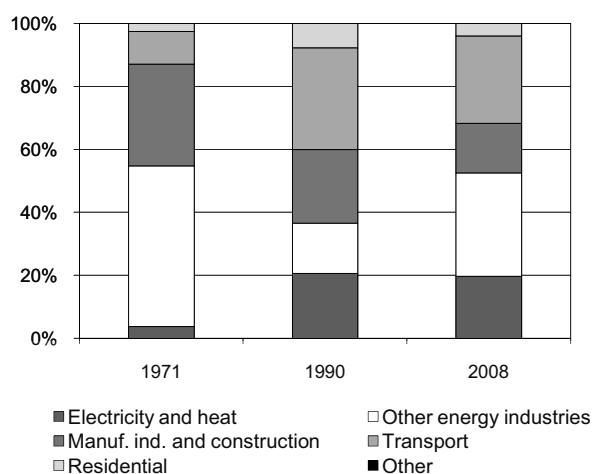
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

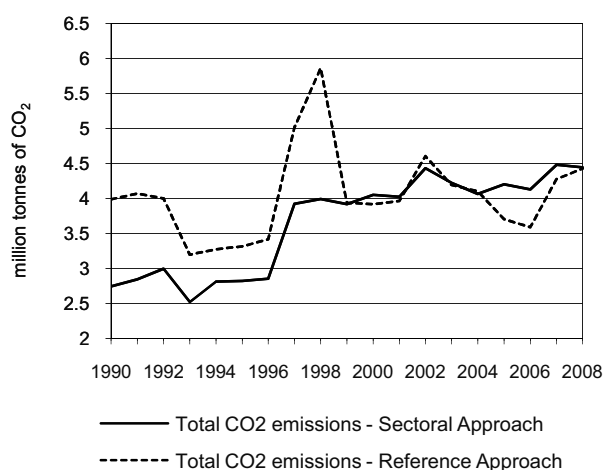


Figure 5. Electricity generation by fuel

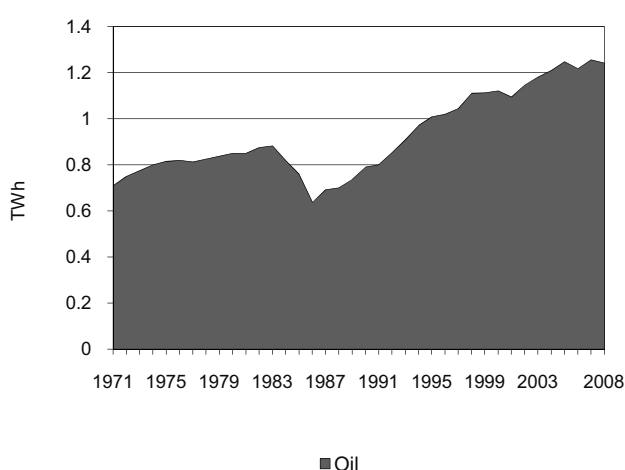
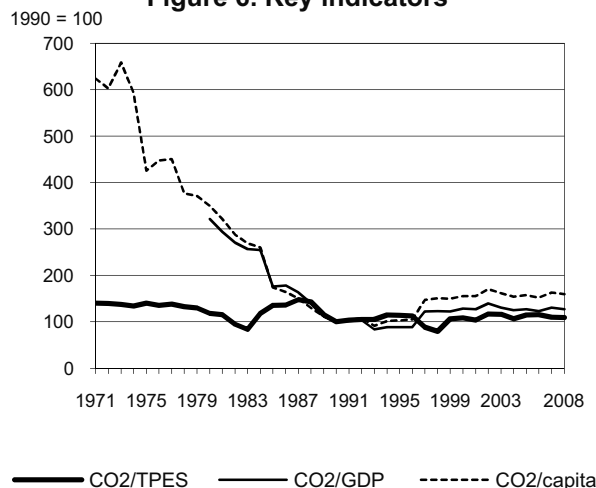


Figure 6. Key indicators



Netherlands Antilles

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.74	2.82	4.05	4.20	4.13	4.48	4.45	62.0%
CO ₂ Reference Approach (Mt of CO ₂) *	3.99	3.31	3.92	3.71	3.59	4.27	4.43	11.0%
TPES (PJ)	61	55	83	81	80	90	91	48.3%
TPES (Mtoe)	1.46	1.31	1.98	1.95	1.90	2.16	2.16	48.3%
GDP (billion 2000 USD)	1.05	1.22	1.20	1.26	1.29	1.31	1.34	27.4%
GDP PPP (billion 2000 USD)	2.36	2.74	2.71	2.84	2.89	2.95	3.01	27.4%
Population (millions)	0.19	0.19	0.18	0.19	0.19	0.19	0.19	1.6%
CO ₂ / TPES (t CO ₂ per TJ)	45.0	51.3	48.9	51.6	51.9	49.5	49.1	9.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.62	2.32	3.37	3.33	3.21	3.42	3.33	27.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.16	1.03	1.50	1.48	1.43	1.52	1.48	27.2%
CO ₂ / population (t CO ₂ per capita)	14.37	14.77	22.38	22.60	21.86	23.45	22.91	59.5%

Ratios are based on the Sectoral Approach.

* The Reference Approach in 1990 overstates emissions since data for lubricants and bitumen (which store carbon) are not available.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach	-	4.45	-	-	4.45	62.0%
Main activity producer elec. and heat	-	0.43	-	-	0.43	56.7%
Unallocated autoproducers	-	0.44	-	-	0.44	53.2%
Other energy industries	-	1.46	-	-	1.46	234.0%
Manufacturing industries and construction	-	0.70	-	-	0.70	8.3%
Transport	-	1.23	-	-	1.23	39.1%
<i>of which: road</i>	-	1.23	-	-	1.23	39.1%
Other	-	0.18	-	-	0.18	-15.9%
<i>of which: residential</i>	-	0.18	-	-	0.18	-15.9%
Reference Approach *	-	4.43	-	-	4.43	11.0%
Diff. due to losses and/or transformation	-	- 0.02	-	-	- 0.02	
Statistical differences	-	-	-	-	-	
<i>Memo: international marine bunkers</i>	-	5.77	-	-	5.77	11.5%
<i>Memo: international aviation bunkers</i>	-	0.22	-	-	0.22	86.5%

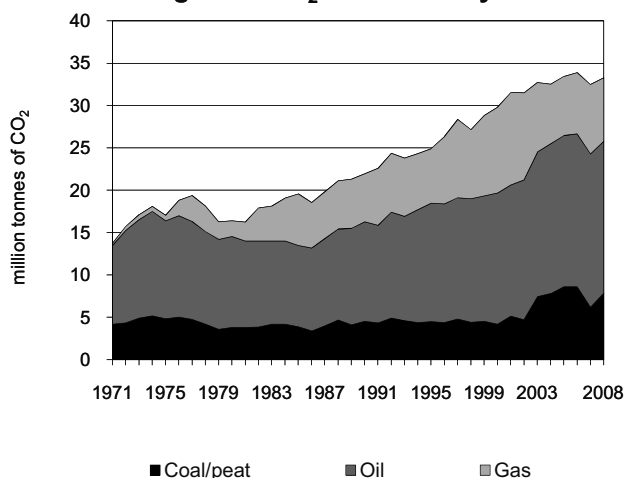
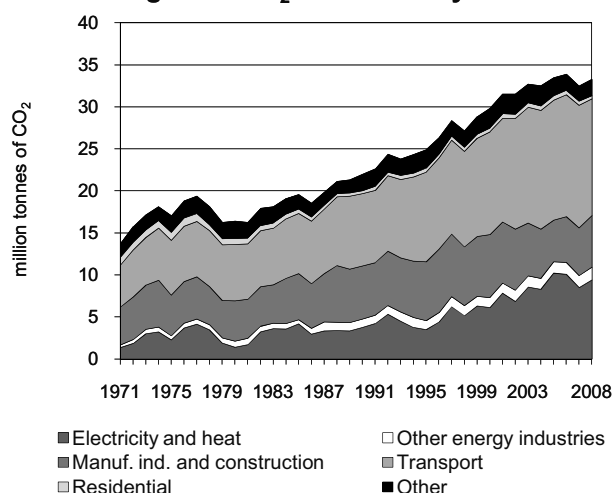
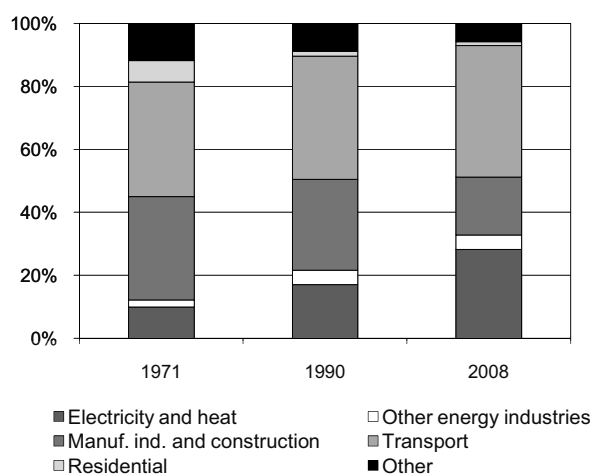
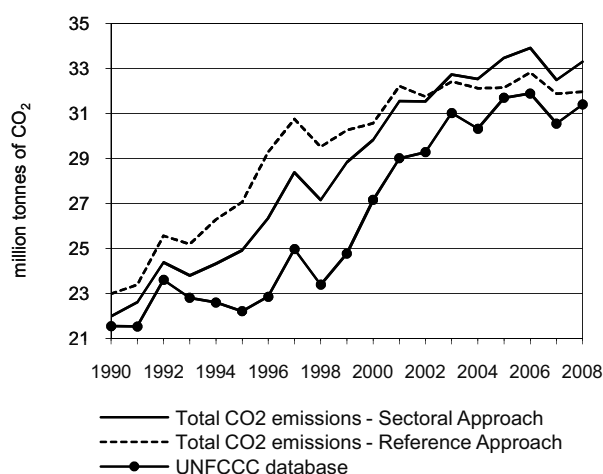
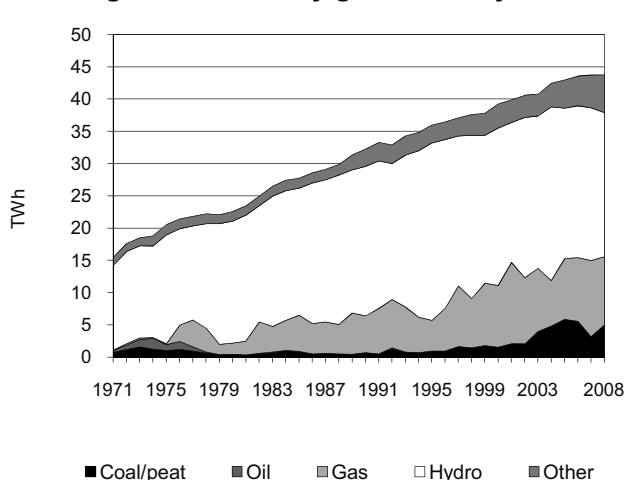
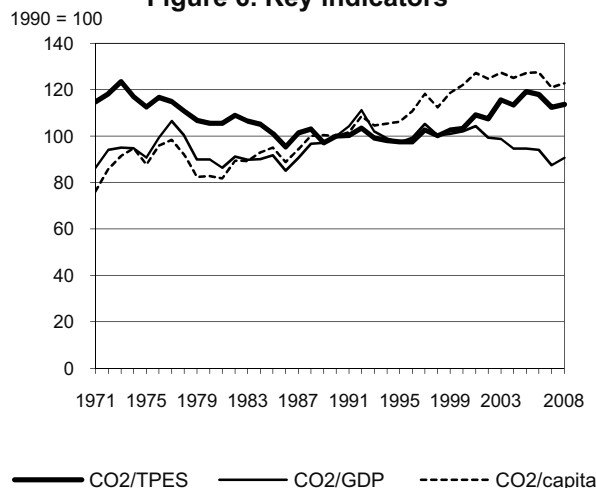
** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Other energy industries - oil	1.46	234.0%	31.5	31.5
Road - oil	1.23	39.1%	26.6	58.1
Manufacturing industries - oil	0.70	8.3%	15.0	73.1
Unallocated autoproducers - oil	0.44	53.2%	9.6	82.7
Main activity prod. elec. and heat - oil	0.43	56.7%	9.4	92.0
Residential - oil	0.18	-15.9%	3.8	95.8
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>4.45</i>	<i>62.0%</i>	<i>95.8</i>	<i>95.8</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

New Zealand

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


New Zealand

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	21.98	24.92	29.82	33.47	33.90	32.49	33.30	51.5%
CO ₂ Reference Approach (Mt of CO ₂)	22.99	27.07	30.57	32.15	32.82	31.87	31.95	39.0%
TPES (PJ)	532	618	699	680	695	699	709	33.4%
TPES (Mtoe)	12.70	14.75	16.68	16.23	16.60	16.69	16.93	33.4%
GDP (billion 2000 USD)	39.62	46.17	52.66	63.79	64.96	66.97	66.24	67.2%
GDP PPP (billion 2000 USD)	60.40	70.38	80.28	97.25	99.04	102.09	100.99	67.2%
Population (millions)	3.49	3.72	3.88	4.18	4.22	4.26	4.31	23.4%
CO ₂ / TPES (t CO ₂ per TJ)	41.3	40.3	42.7	49.2	48.8	46.5	47.0	13.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.55	0.54	0.57	0.52	0.52	0.49	0.50	-9.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.36	0.35	0.37	0.34	0.34	0.32	0.33	-9.4%
CO ₂ / population (t CO ₂ per capita)	6.30	6.69	7.69	8.01	8.03	7.62	7.74	22.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	7.82	17.98	7.50	-	33.30	51.5%
Main activity producer elec. and heat	4.06	0.10	3.92	-	8.08	139.6%
Unallocated autoproducers	1.04	-	0.31	-	1.34	249.6%
Other energy industries	0.14	1.01	0.36	-	1.51	49.9%
Manufacturing industries and construction	2.01	1.69	2.44	-	6.14	-3.1%
Transport	-	13.89	0.01	-	13.90	61.8%
<i>of which: road</i>	-	12.66	0.01	-	12.67	68.0%
Other	0.59	1.29	0.46	-	2.34	2.2%
<i>of which: residential</i>	0.03	0.15	0.21	-	0.40	13.9%
Reference Approach	6.68	17.72	7.56	-	31.95	39.0%
Diff. due to losses and/or transformation	- 0.04	0.11	0.04	-	0.11	
Statistical differences	- 1.10	- 0.37	0.02	-	- 1.46	
<i>Memo: international marine bunkers</i>	-	1.09	-	-	1.09	4.7%
<i>Memo: international aviation bunkers</i>	-	2.54	-	-	2.54	87.6%

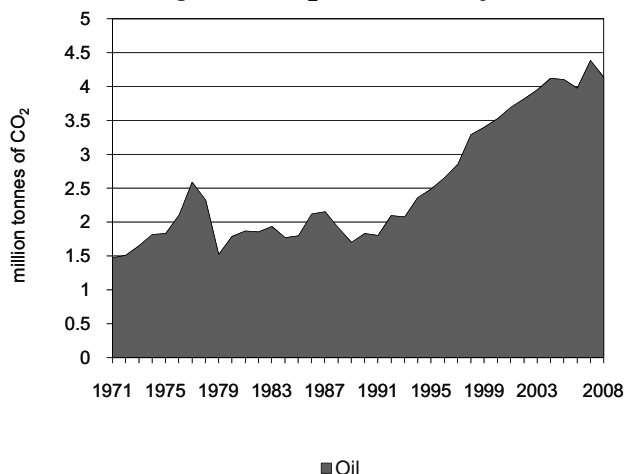
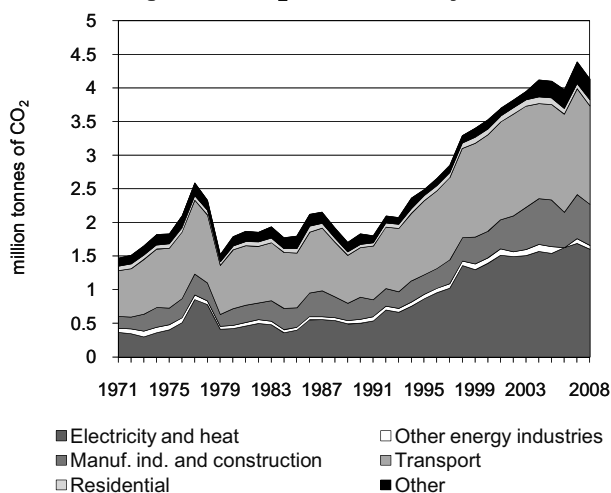
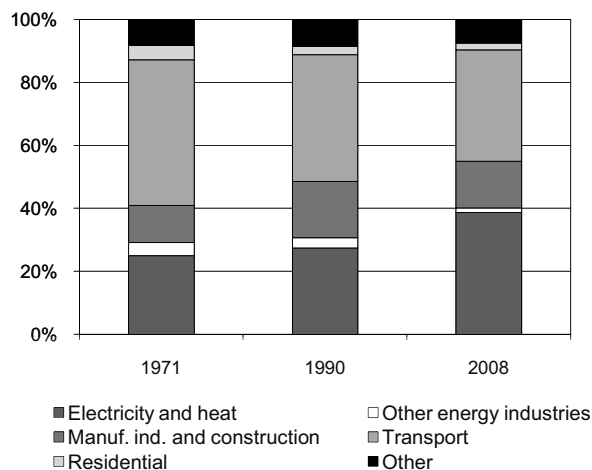
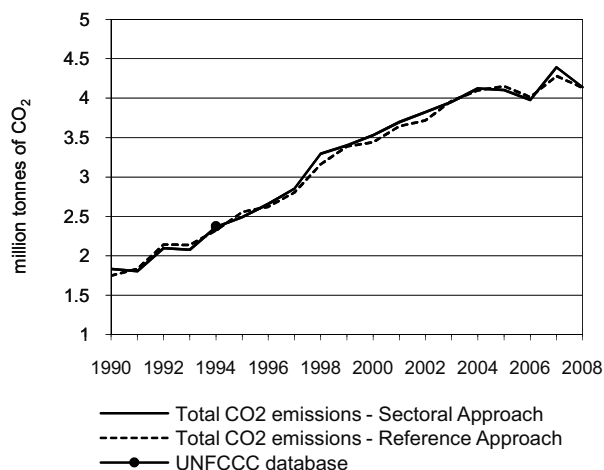
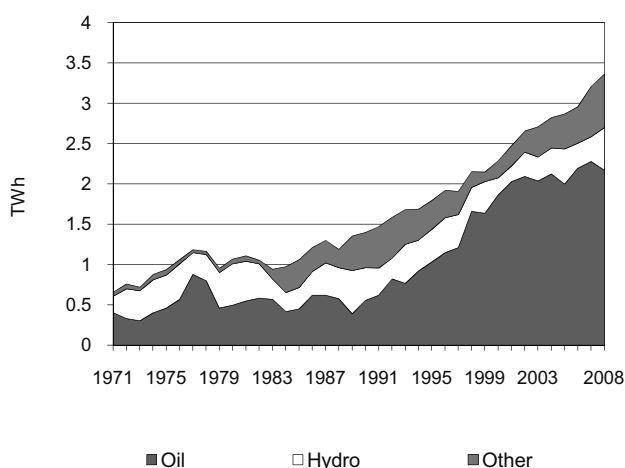
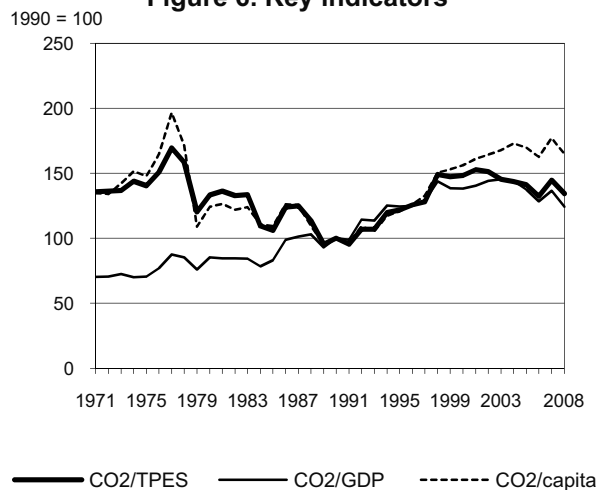
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	12.66	70.9%	16.5	16.5
Main activity prod. elec. and heat - coal/peat	4.06	727.8%	5.3	21.8
Main activity prod. elec. and heat - gas	3.92	37.1%	5.1	27.0
Manufacturing industries - gas	2.44	18.3%	3.2	30.1
Manufacturing industries - coal/peat	2.01	-37.5%	2.6	32.8
Manufacturing industries - oil	1.69	58.7%	2.2	35.0
Other transport - oil	1.23	17.2%	1.6	36.6
Non-specified other - oil	1.14	-15.1%	1.5	38.1
Unallocated autoproducers - coal/peat	1.04	197.8%	1.4	39.4
Other energy industries - oil	1.01	22.6%	1.3	40.7
Non-specified other sectors - coal/peat	0.56	58.5%	0.7	41.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>33.30</i>	<i>51.5%</i>	<i>43.5</i>	<i>43.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Nicaragua

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Nicaragua

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1.83	2.49	3.53	4.10	3.98	4.39	4.14	125.9%
CO ₂ Reference Approach (Mt of CO ₂)	1.75	2.55	3.44	4.15	4.02	4.28	4.13	136.3%
TPES (PJ)	88	98	114	139	144	145	147	68.2%
TPES (Mtoe)	2.09	2.34	2.72	3.32	3.43	3.47	3.52	68.2%
GDP (billion 2000 USD)	2.82	3.08	3.94	4.60	4.77	4.96	5.13	81.9%
GDP PPP (billion 2000 USD)	11.04	12.06	15.41	18.01	18.67	19.40	20.08	81.9%
Population (millions)	4.14	4.66	5.11	5.46	5.53	5.61	5.68	37.1%
CO ₂ / TPES (t CO ₂ per TJ)	20.9	25.4	31.0	29.5	27.7	30.3	28.1	34.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.65	0.81	0.90	0.89	0.83	0.89	0.81	24.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.17	0.21	0.23	0.23	0.21	0.23	0.21	24.2%
CO ₂ / population (t CO ₂ per capita)	0.44	0.53	0.69	0.75	0.72	0.78	0.73	64.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	4.14	-	-	4.14	125.9%
Main activity producer elec. and heat	-	1.60	-	-	1.60	231.6%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	0.06	-	-	0.06	-3.2%
Manufacturing industries and construction	-	0.61	-	-	0.61	86.5%
Transport	-	1.46	-	-	1.46	98.5%
<i>of which: road</i>	-	1.34	-	-	1.34	91.8%
Other	-	0.40	-	-	0.40	95.8%
<i>of which: residential</i>	-	0.09	-	-	0.09	82.0%
Reference Approach	-	4.13	-	-	4.13	136.3%
Diff. due to losses and/or transformation	-	- 0.07	-	-	- 0.07	
Statistical differences	-	0.06	-	-	0.06	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.08	-	-	0.08	-3.8%

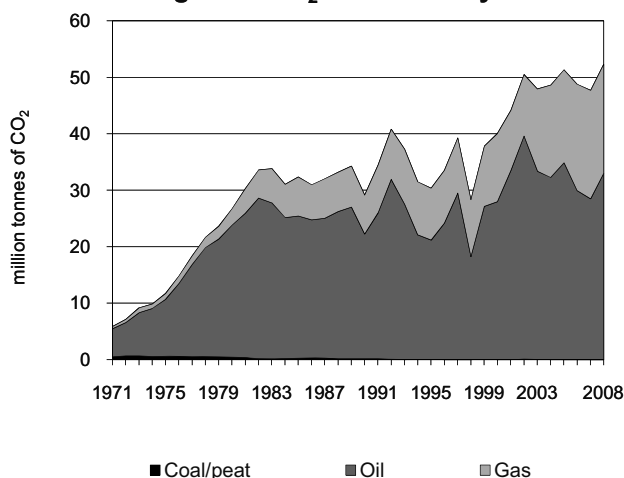
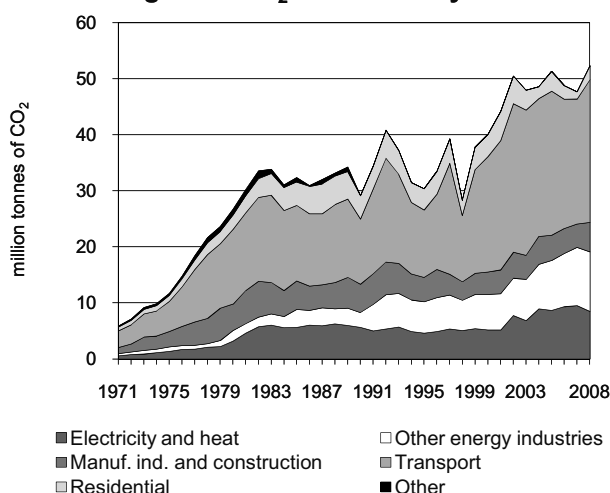
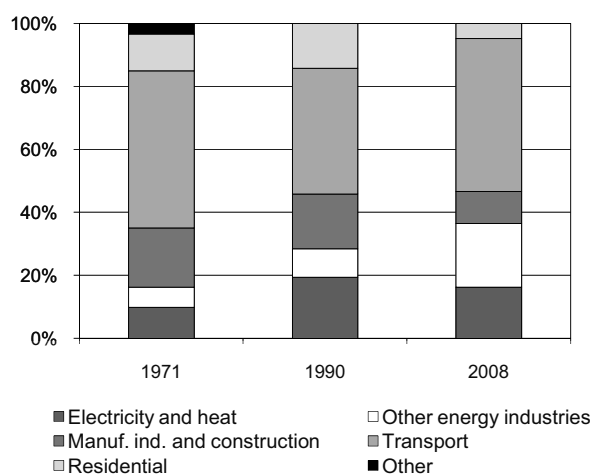
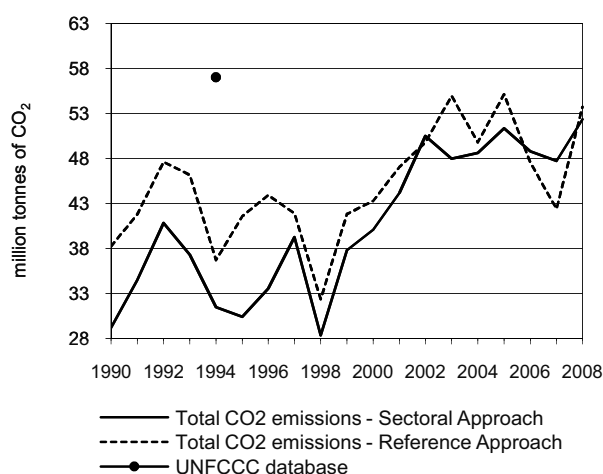
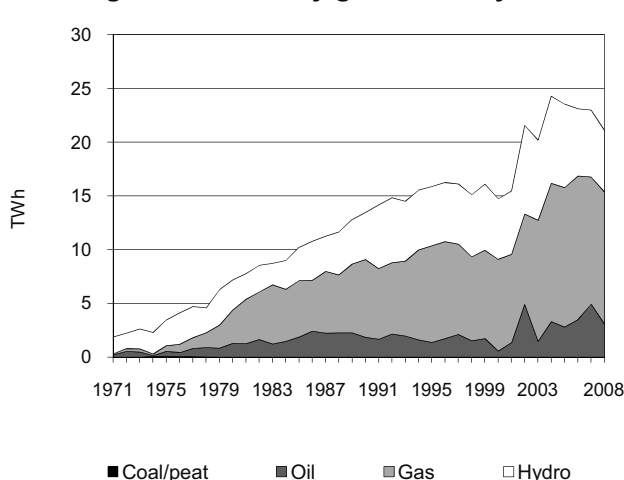
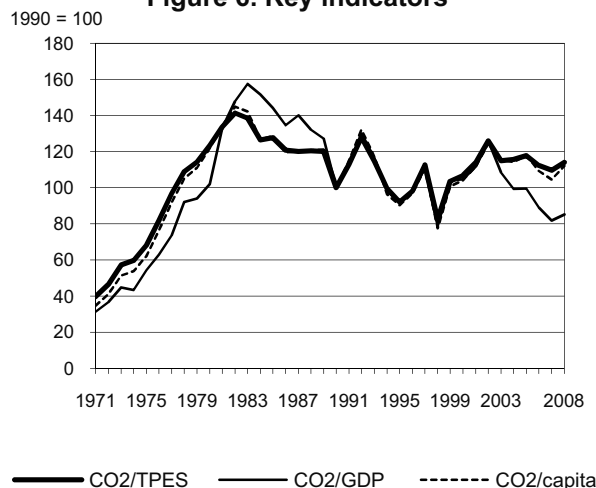
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.60	231.6%	11.0	11.0
Road - oil	1.34	91.8%	9.2	20.2
Manufacturing industries - oil	0.61	86.5%	4.2	24.4
Non-specified other - oil	0.31	100.1%	2.1	26.6
Other transport - oil	0.12	223.4%	0.8	27.4
Residential - oil	0.09	82.0%	0.6	28.0
Other energy industries - oil	0.06	-3.2%	0.4	28.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	4.14	125.9%	28.4	28.4

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Nigeria

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Nigeria

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂) *	29.16	30.41	40.09	51.36	48.79	47.71	52.35	79.6%
CO ₂ Reference Approach (Mt of CO ₂) *	38.23	41.57	43.27	55.13	47.56	42.38	53.73	40.5%
TPES (PJ)	2 955	3 350	3 806	4 418	4 404	4 410	4 654	57.5%
TPES (Mtoe)	70.58	80.00	90.91	105.52	105.19	105.32	111.16	57.5%
GDP (billion 2000 USD)	34.98	39.54	45.98	61.90	65.74	69.98	73.68	110.6%
GDP PPP (billion 2000 USD)	80.34	90.82	105.62	142.18	150.99	160.73	169.23	110.6%
Population (millions)	94.45	109.01	124.77	141.36	144.72	147.98	151.32	60.2%
CO ₂ / TPES (t CO ₂ per TJ)	9.9	9.1	10.5	11.6	11.1	10.8	11.2	14.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.83	0.77	0.87	0.83	0.74	0.68	0.71	-14.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.36	0.33	0.38	0.36	0.32	0.30	0.31	-14.7%
CO ₂ / population (t CO ₂ per capita)	0.31	0.28	0.32	0.36	0.34	0.32	0.35	12.1%

Ratios are based on the Sectoral Approach.

* The difference in the growth rate between the Sectoral and Reference Approaches is mainly due to statistical differences for some oil products in 1990.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach *	0.02	32.99	19.34	-	52.35	79.6%
Main activity producer elec. and heat	-	2.17	6.35	-	8.52	50.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	1.21	9.40	-	10.60	300.5%
Manufacturing industries and construction	0.02	1.67	3.59	-	5.28	4.7%
Transport	-	25.45	-	-	25.45	118.6%
<i>of which: road</i>	-	25.30	-	-	25.30	121.5%
Other	-	2.50	-	-	2.50	-39.9%
<i>of which: residential</i>	-	2.50	-	-	2.50	-39.9%
Reference Approach *	0.02	32.35	21.36	-	53.73	40.5%
Diff. due to losses and/or transformation	-	3.06	2.21	-	5.27	
Statistical differences	-	- 3.70	- 0.20	-	- 3.90	
<i>Memo: international marine bunkers</i>	-	2.71	-	-	2.71	367.4%
<i>Memo: international aviation bunkers</i>	-	2.63	-	-	2.63	175.8%

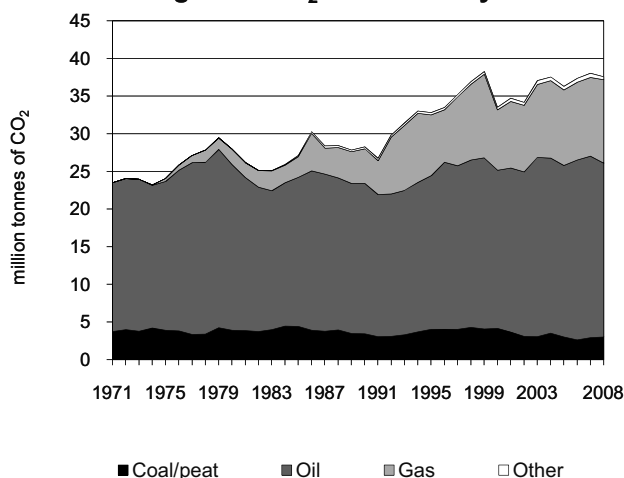
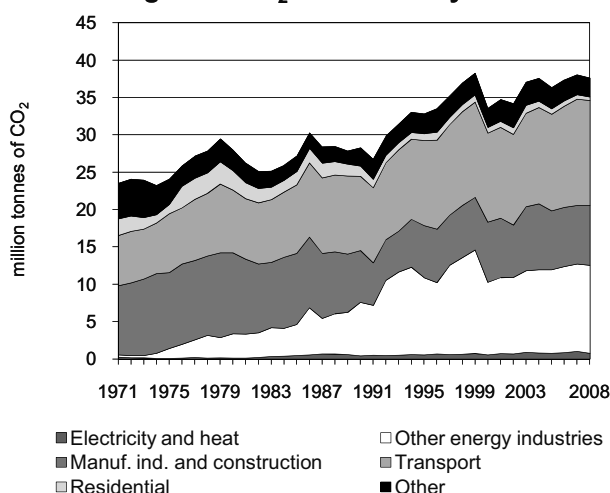
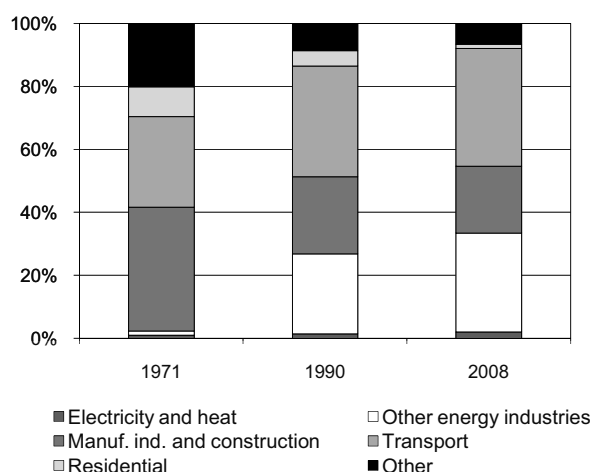
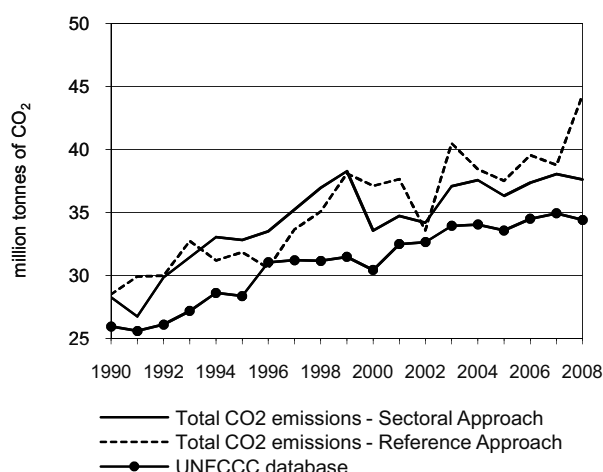
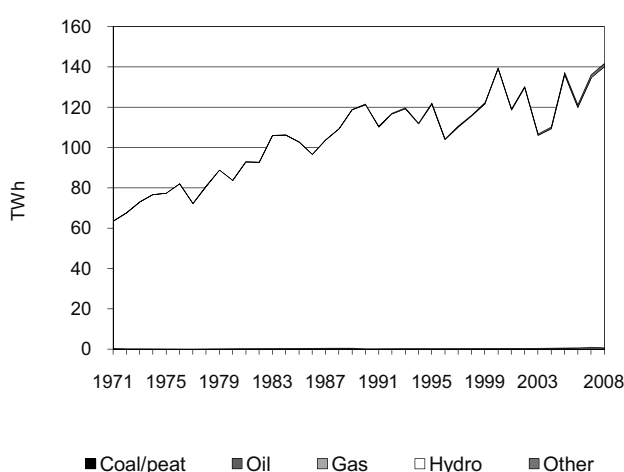
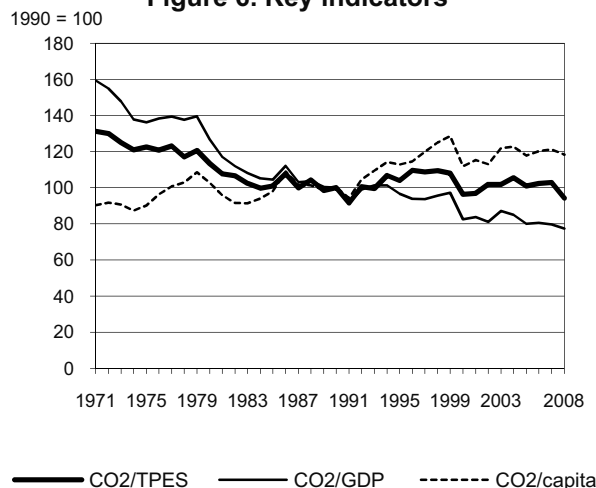
** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Road - oil	25.30	121.5%	9.7	9.7
Other energy industries - gas	9.40	851.1%	3.6	13.3
Main activity prod. elec. and heat - gas	6.35	50.5%	2.4	15.8
Manufacturing industries - gas	3.59	114.7%	1.4	17.2
Residential - oil	2.50	-39.9%	1.0	18.1
Main activity prod. elec. and heat - oil	2.17	52.5%	0.8	19.0
Manufacturing industries - oil	1.67	-48.1%	0.6	19.6
Other energy industries - oil	1.21	-27.3%	0.5	20.1
Other transport - oil	0.15	-29.4%	0.1	20.1
Manufacturing industries - coal/peat	0.02	-87.5%	0.0	20.1
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>52.35</i>	<i>79.6%</i>	<i>20.1</i>	<i>20.1</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Norway *

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


* Large statistical differences for oil and gas cause discrepancies between the Sectoral and Reference Approaches; please see the note in Chapter 1.

Norway

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂) *	28.29	32.81	33.54	36.32	37.38	38.04	37.61	33.0%
CO ₂ Reference Approach (Mt of CO ₂) *	28.51	31.84	37.10	37.53	39.55	38.77	44.32	55.5%
TPES (PJ)	879	981	1 083	1 120	1 134	1 149	1 242	41.3%
TPES (Mtoe)	21.00	23.42	25.87	26.74	27.09	27.45	29.67	41.3%
GDP (billion 2000 USD)	116.97	140.45	168.29	187.79	192.07	197.32	200.90	71.8%
GDP PPP (billion 2000 USD)	112.78	135.42	162.26	181.06	185.19	190.25	193.70	71.8%
Population (millions)	4.24	4.36	4.49	4.62	4.66	4.71	4.77	12.4%
CO ₂ / TPES (t CO ₂ per TJ)	32.2	33.5	31.0	32.4	33.0	33.1	30.3	-5.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.24	0.23	0.20	0.19	0.19	0.19	0.19	-22.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.25	0.24	0.21	0.20	0.20	0.20	0.19	-22.6%
CO ₂ / population (t CO ₂ per capita)	6.67	7.53	7.47	7.86	8.02	8.08	7.89	18.3%

Ratios are based on the Sectoral Approach.

* Large statistical differences for oil and gas cause discrepancies between the Sectoral and Reference Approaches; please see note in Chapter 1.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach *	3.01	23.10	11.09	0.40	37.61	33.0%
Main activity producer elec. and heat	0.17	0.09	0.06	0.31	0.64	50.7%
Unallocated autoproducers	-	0.01	0.11	0.01	0.13	x
Other energy industries	-	2.45	9.35	-	11.80	64.4%
Manufacturing industries and construction	2.84	3.72	1.36	0.08	8.00	15.5%
Transport	-	13.93	0.11	-	14.04	41.4%
<i>of which: road</i>	-	10.42	0.01	-	10.43	37.2%
Other	-	2.91	0.09	-	3.00	-21.6%
<i>of which: residential</i>	-	0.49	0.01	-	0.50	-63.9%
Reference Approach *	3.16	29.83	10.92	0.40	44.32	55.5%
Diff. due to losses and/or transformation	0.11	- 1.95	-	-	- 1.83	
Statistical differences	0.04	8.67	- 0.16	- 0.00	8.55	
<i>Memo: international marine bunkers</i>	-	1.49	-	-	1.49	7.1%
<i>Memo: international aviation bunkers</i>	-	1.13	-	-	1.13	-9.0%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Road - oil	10.42	37.1%	18.3	18.3
Other energy industries - gas	9.35	102.6%	16.4	34.7
Manufacturing industries - oil	3.72	1.4%	6.5	41.3
Other transport - oil	3.50	50.5%	6.2	47.4
Manufacturing industries - coal/peat	2.84	-12.9%	5.0	52.4
Other energy industries - oil	2.45	-4.3%	4.3	56.7
Non-specified other - oil	2.42	-0.3%	4.2	61.0
Manufacturing industries - gas	1.36	x	2.4	63.4
Residential - oil	0.49	-63.8%	0.9	64.3
Main activity prod. elec. and heat - other	0.31	27.6%	0.5	64.8
Main activity prod. elec. and heat - coal/peat	0.17	25.1%	0.3	65.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>37.61</i>	<i>33.0%</i>	<i>66.1</i>	<i>66.1</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Oman

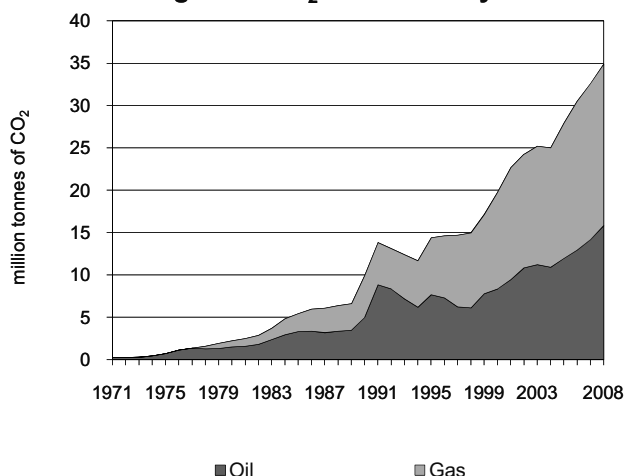
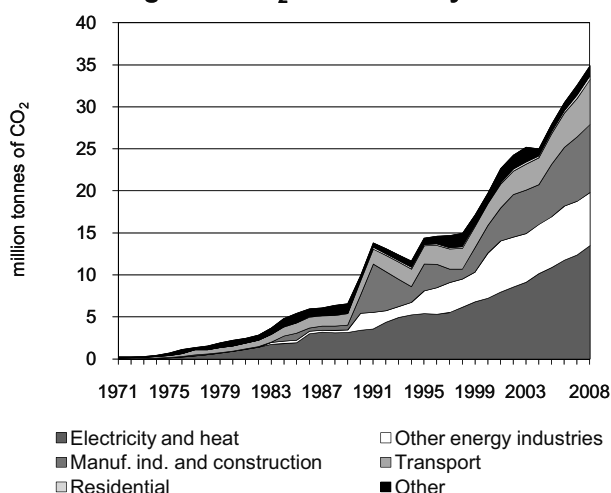
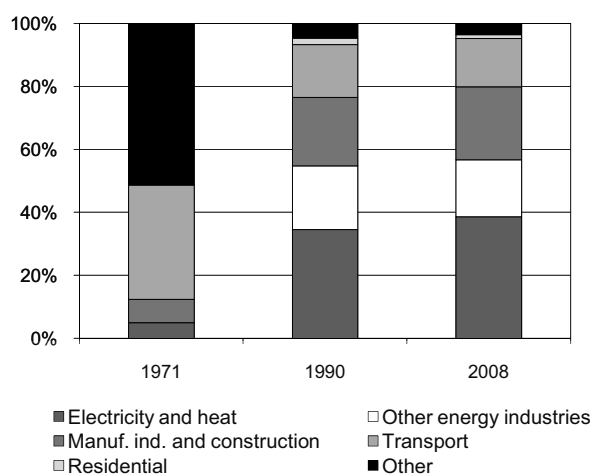
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

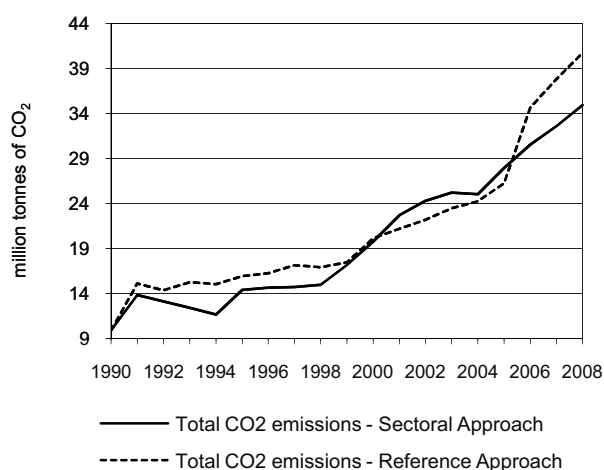


Figure 5. Electricity generation by fuel

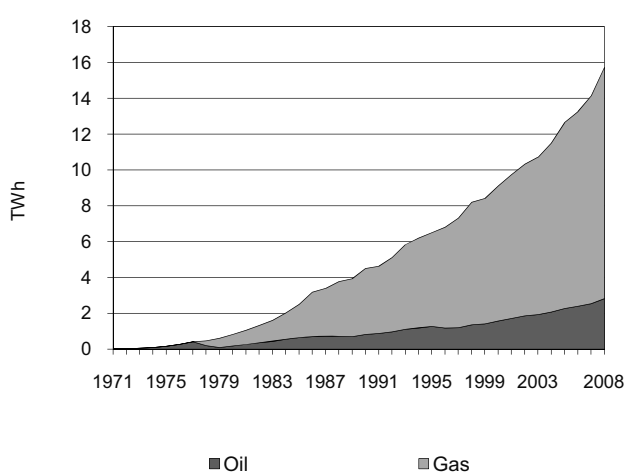
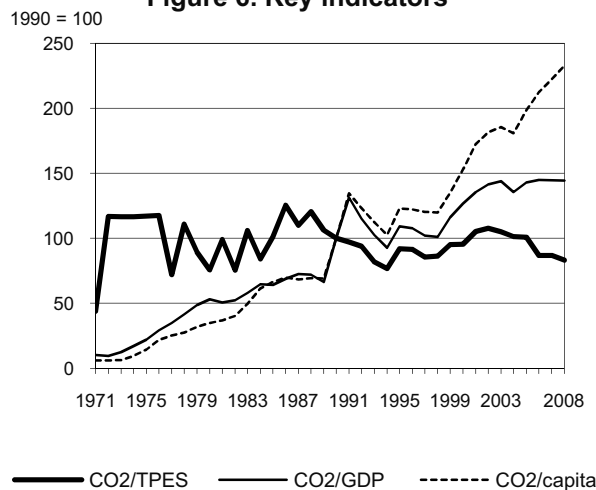


Figure 6. Key indicators



Oman

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	9.93	14.40	19.76	27.95	30.54	32.61	34.92	251.8%
CO ₂ Reference Approach (Mt of CO ₂)	9.87	15.93	20.14	26.26	34.65	37.83	40.69	312.1%
TPES (PJ)	162	256	339	453	576	615	688	323.8%
TPES (Mtoe)	3.88	6.11	8.09	10.83	13.75	14.70	16.44	323.8%
GDP (billion 2000 USD)	12.65	16.83	19.87	24.95	26.85	28.75	30.82	143.6%
GDP PPP (billion 2000 USD)	19.61	26.08	30.79	38.66	41.60	44.55	47.76	143.6%
Population (millions)	1.84	2.17	2.40	2.62	2.67	2.73	2.79	51.1%
CO ₂ / TPES (t CO ₂ per TJ)	61.1	56.2	58.4	61.7	53.0	53.0	50.7	-17.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.78	0.86	0.99	1.12	1.14	1.13	1.13	44.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.51	0.55	0.64	0.72	0.73	0.73	0.73	44.4%
CO ₂ / population (t CO ₂ per capita)	5.39	6.63	8.23	10.68	11.44	11.96	12.54	132.8%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	15.83	19.09	-	34.92	251.8%
Main activity producer elec. and heat	-	2.99	10.50	-	13.48	293.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	0.69	5.65	-	6.33	215.4%
Manufacturing industries and construction	-	5.44	2.64	-	8.07	274.0%
Transport	-	5.35	-	-	5.35	221.0%
<i>of which: road</i>	-	5.35	-	-	5.35	221.0%
Other	-	1.37	0.31	-	1.68	153.7%
<i>of which: residential</i>	-	0.44	-	-	0.44	125.8%
Reference Approach	-	14.99	25.70	-	40.69	312.1%
Diff. due to losses and/or transformation	-	0.43	2.63	-	3.06	
Statistical differences	-	- 1.28	3.99	-	2.71	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	1.36	-	-	1.36	45.9%

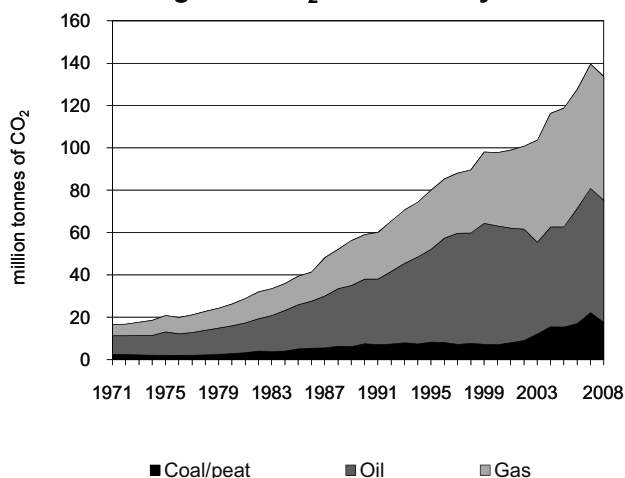
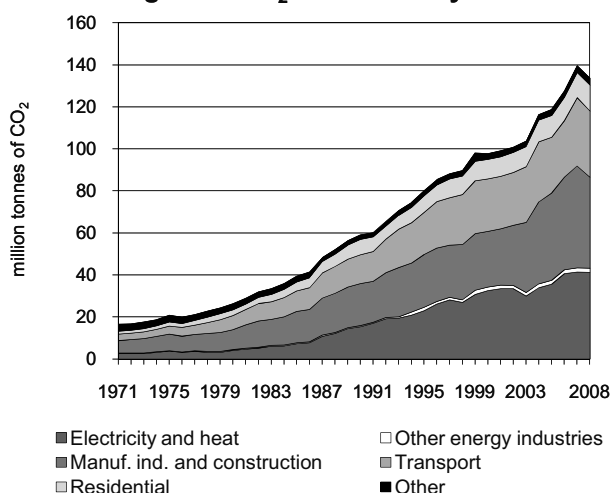
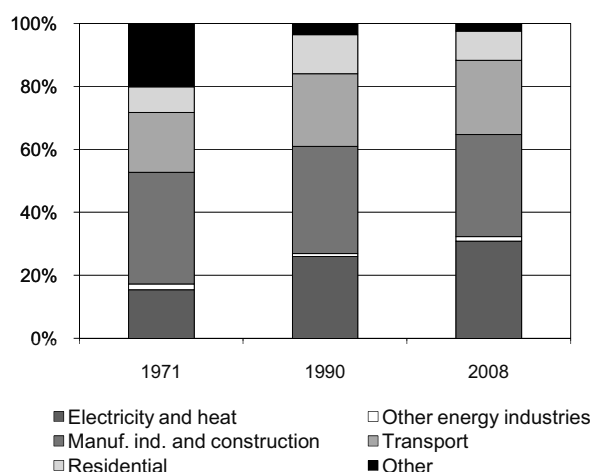
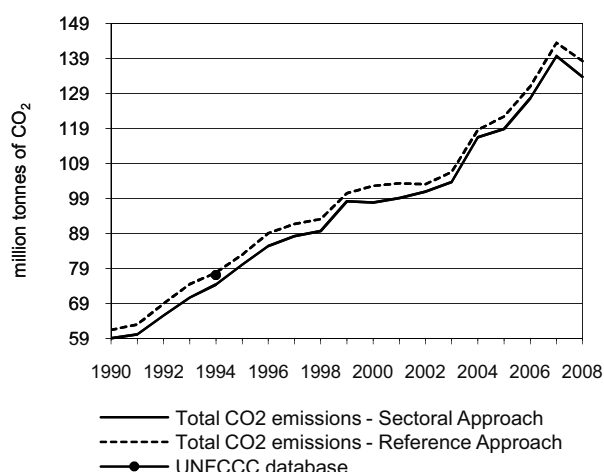
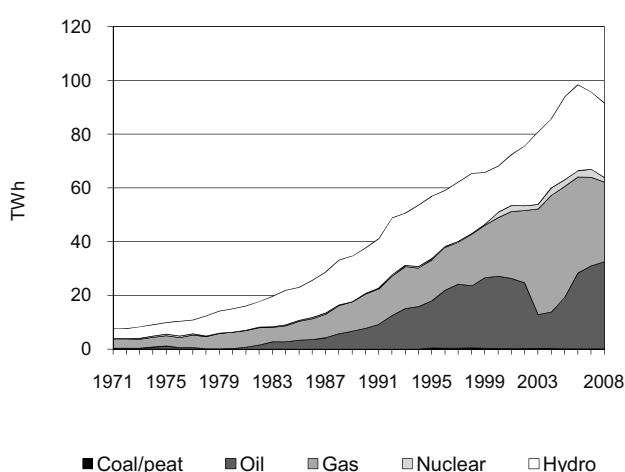
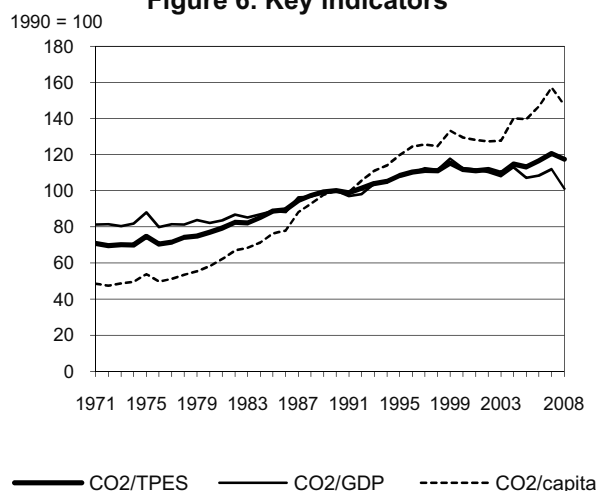
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	10.50	310.3%	17.5	17.5
Other energy industries - gas	5.65	251.9%	9.4	26.8
Manufacturing industries - oil	5.44	246.9%	9.0	35.9
Road - oil	5.35	221.0%	8.9	44.8
Main activity prod. elec. and heat - oil	2.99	242.2%	5.0	49.7
Manufacturing industries - gas	2.64	345.6%	4.4	54.1
Non-specified other - oil	0.93	206.3%	1.6	55.7
Other energy industries - oil	0.69	70.2%	1.1	56.8
Residential - oil	0.44	125.8%	0.7	57.6
Non-specified other - gas	0.31	88.8%	0.5	58.1
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>34.92</i>	<i>251.8%</i>	<i>58.1</i>	<i>58.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Pakistan

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Pakistan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	59.06	80.13	97.82	118.87	127.63	139.69	133.79	126.5%
CO ₂ Reference Approach (Mt of CO ₂)	61.43	82.94	102.58	122.41	130.98	143.47	138.24	125.0%
TPES (PJ)	1 799	2 251	2 666	3 202	3 334	3 530	3 468	92.8%
TPES (Mtoe)	42.96	53.76	63.68	76.47	79.64	84.30	82.84	92.8%
GDP (billion 2000 USD)	50.25	63.00	73.95	94.36	100.19	106.21	112.53	123.9%
GDP PPP (billion 2000 USD)	178.00	223.17	261.97	334.25	354.90	376.24	398.63	123.9%
Population (millions)	107.98	122.38	138.08	155.77	159.00	162.48	166.04	53.8%
CO ₂ / TPES (t CO ₂ per TJ)	32.8	35.6	36.7	37.1	38.3	39.6	38.6	17.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.18	1.27	1.32	1.26	1.27	1.32	1.19	1.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.33	0.36	0.37	0.36	0.36	0.37	0.34	1.1%
CO ₂ / population (t CO ₂ per capita)	0.55	0.65	0.71	0.76	0.80	0.86	0.81	47.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	17.63	57.73	58.43	-	133.79	126.5%
Main activity producer elec. and heat	0.24	23.70	17.38	-	41.32	169.1%
Unallocated autoproducers	-	0.01	-	-	0.01	x
Other energy industries	-	1.13	0.80	-	1.92	239.3%
Manufacturing industries and construction	17.38	3.27	22.70	-	43.35	116.0%
Transport	-	26.92	4.58	-	31.50	130.9%
<i>of which: road</i>	-	26.04	4.58	-	30.62	140.0%
Other	0.00	2.71	12.97	-	15.68	66.4%
<i>of which: residential</i>	0.00	1.22	11.12	-	12.35	69.4%
Reference Approach	18.29	60.46	59.49	-	138.24	125.0%
Diff. due to losses and/or transformation	0.67	0.81	1.06	-	2.53	
Statistical differences	- 0.00	1.93	0.00	-	1.92	
<i>Memo: international marine bunkers</i>	-	0.54	-	-	0.54	402.2%
<i>Memo: international aviation bunkers</i>	-	2.38	-	-	2.38	71.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	26.04	104.1%	8.1	8.1
Main activity prod. elec. and heat - oil	23.70	243.7%	7.4	15.5
Manufacturing industries - gas	22.70	170.2%	7.1	22.5
Main activity prod. elec. and heat - gas	17.38	107.1%	5.4	27.9
Manufacturing industries - coal/peat	17.38	133.2%	5.4	33.3
Residential - gas	11.12	220.5%	3.5	36.8
Road - gas	4.58	+	1.4	38.2
Manufacturing industries - oil	3.27	-22.5%	1.0	39.2
Non-specified other - gas	1.85	188.5%	0.6	39.8
Non-specified other - oil	1.49	-0.7%	0.5	40.3
Residential - oil	1.22	-67.9%	0.4	40.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>133.79</i>	<i>126.5%</i>	<i>41.6</i>	<i>41.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Panama

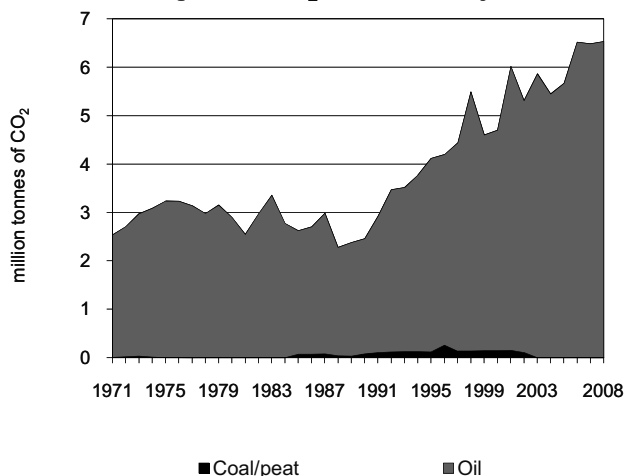
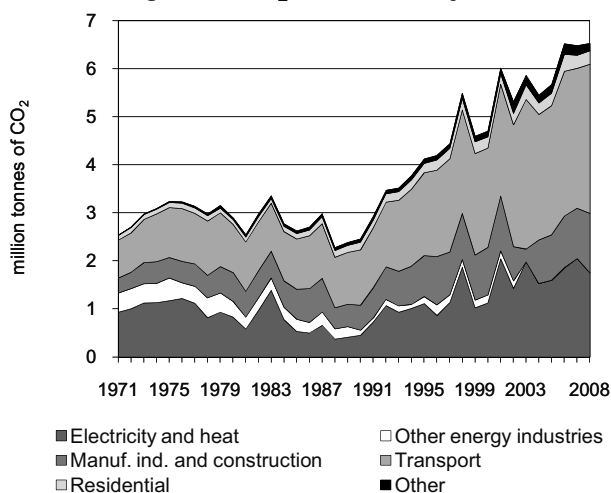
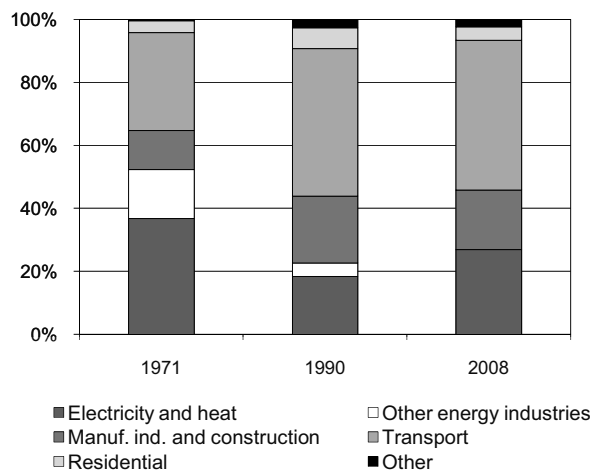
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

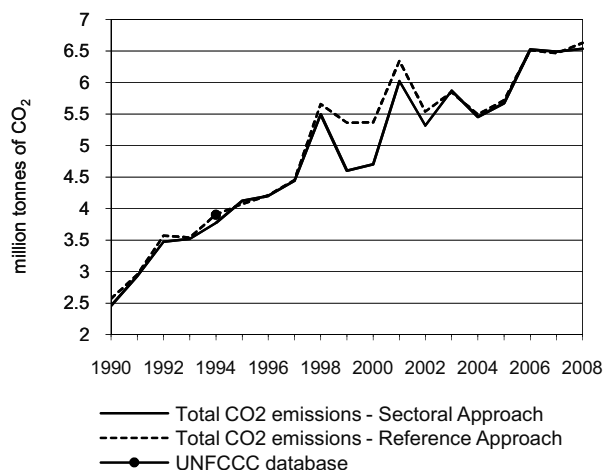


Figure 5. Electricity generation by fuel

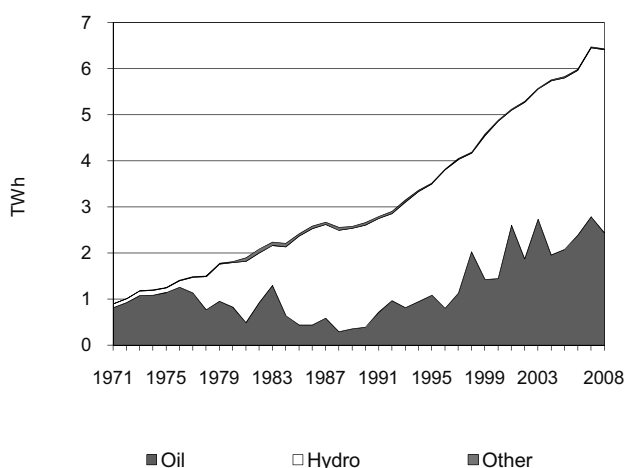
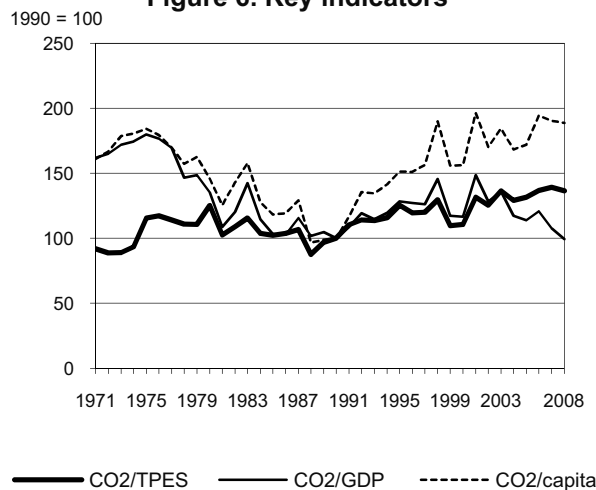


Figure 6. Key indicators



Panama

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.46	4.12	4.70	5.67	6.52	6.49	6.53	165.6%
CO ₂ Reference Approach (Mt of CO ₂)	2.57	4.07	5.37	5.72	6.51	6.46	6.63	157.9%
TPES (PJ)	62	83	108	109	121	118	121	94.4%
TPES (Mtoe)	1.49	1.99	2.58	2.61	2.89	2.82	2.90	94.4%
GDP (billion 2000 USD)	7.09	9.27	11.62	14.35	15.57	17.37	18.97	167.4%
GDP PPP (billion 2000 USD)	10.89	14.23	17.84	22.03	23.91	26.67	29.12	167.4%
Population (millions)	2.41	2.67	2.95	3.23	3.29	3.34	3.40	40.8%
CO ₂ / TPES (t CO ₂ per TJ)	39.4	49.4	43.6	51.8	53.9	54.9	53.8	36.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.35	0.44	0.40	0.40	0.42	0.37	0.34	-0.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.23	0.29	0.26	0.26	0.27	0.24	0.22	-0.7%
CO ₂ / population (t CO ₂ per capita)	1.02	1.54	1.59	1.75	1.98	1.94	1.92	88.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	6.53	-	-	6.53	165.6%
Main activity producer elec. and heat	-	1.76	-	-	1.76	332.5%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	1.23	-	-	1.23	136.9%
Transport	-	3.11	-	-	3.11	169.4%
<i>of which: road</i>	-	1.44	-	-	1.44	123.3%
Other	-	0.43	-	-	0.43	91.3%
<i>of which: residential</i>	-	0.28	-	-	0.28	75.0%
Reference Approach	-	6.63	-	-	6.63	157.9%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.09	-	-	0.09	-
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.94	-	-	0.94	364.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	1.76	332.5%	14.9	14.9
Other transport - oil	1.67	227.9%	14.1	29.0
Road - oil	1.44	123.3%	12.2	41.2
Manufacturing industries - oil	1.23	177.7%	10.5	51.7
Residential - oil	0.28	75.0%	2.4	54.1
Non-specified other - oil	0.15	130.9%	1.3	55.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	6.53	165.6%	55.4	55.4

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Paraguay

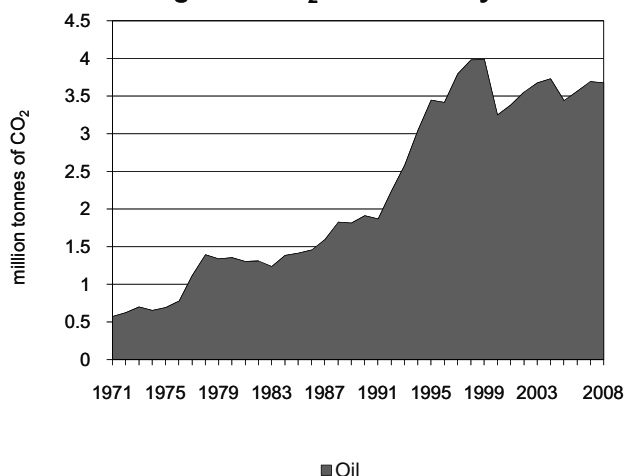
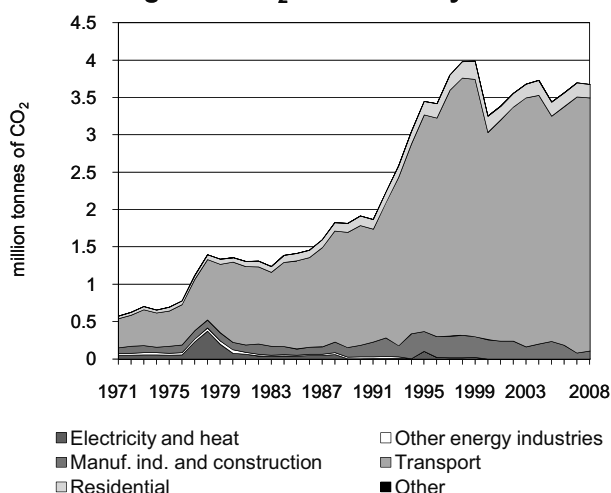
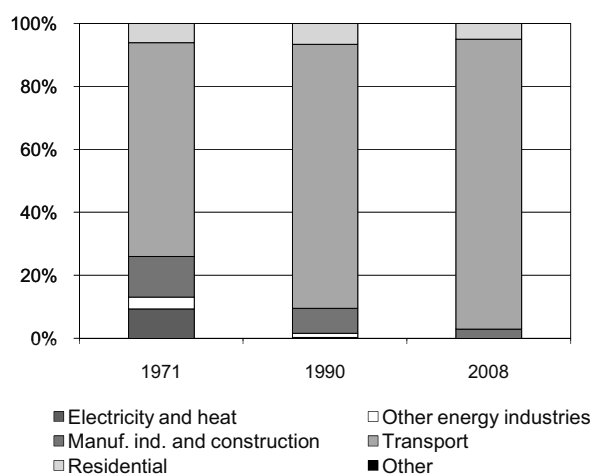
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

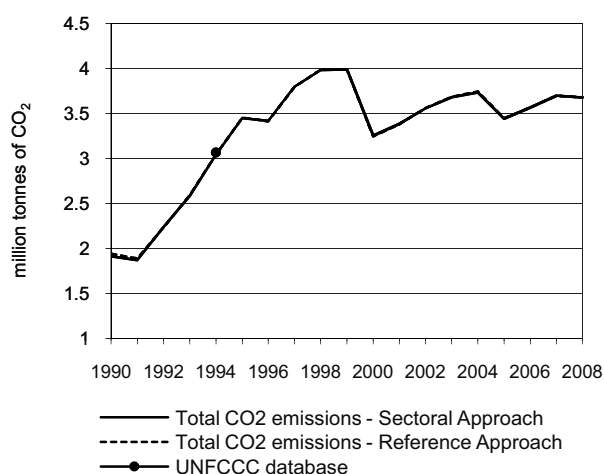


Figure 5. Electricity generation by fuel

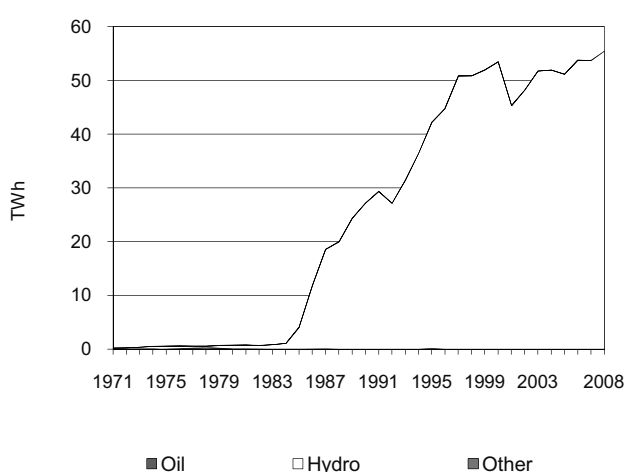
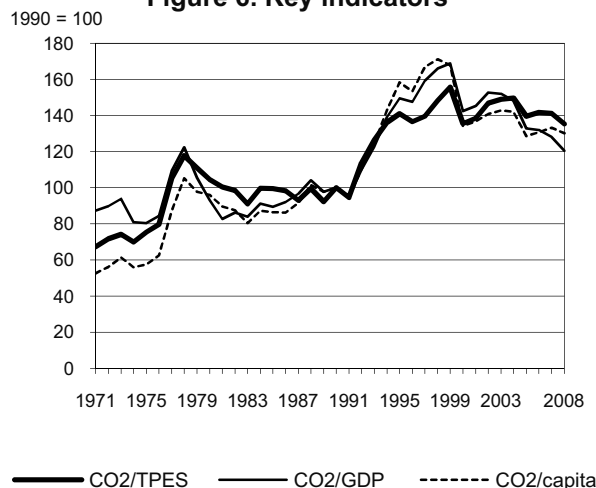


Figure 6. Key indicators



Paraguay

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1.91	3.45	3.25	3.44	3.57	3.70	3.68	92.1%
CO ₂ Reference Approach (Mt of CO ₂)	1.94	3.45	3.25	3.45	3.57	3.70	3.68	89.4%
TPES (PJ)	129	164	161	166	169	176	183	41.9%
TPES (Mtoe)	3.07	3.93	3.85	3.96	4.04	4.20	4.36	41.9%
GDP (billion 2000 USD)	5.93	7.14	7.07	8.03	8.37	8.94	9.45	59.5%
GDP PPP (billion 2000 USD)	18.67	22.49	22.27	25.27	26.36	28.15	29.77	59.5%
Population (millions)	4.22	4.80	5.35	5.90	6.02	6.12	6.23	47.6%
CO ₂ / TPES (t CO ₂ per TJ)	14.9	21.0	20.2	20.8	21.1	21.0	20.1	35.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.32	0.48	0.46	0.43	0.43	0.41	0.39	20.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.10	0.15	0.15	0.14	0.14	0.13	0.12	20.4%
CO ₂ / population (t CO ₂ per capita)	0.45	0.72	0.61	0.58	0.59	0.60	0.59	30.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	3.68	-	-	3.68	92.1%
Main activity producer elec. and heat	-	-	-	-	-	-100.0%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	-	0.11	-	-	0.11	-29.1%
Transport	-	3.39	-	-	3.39	111.1%
<i>of which: road</i>	-	3.34	-	-	3.34	113.5%
Other	-	0.18	-	-	0.18	45.2%
<i>of which: residential</i>	-	0.18	-	-	0.18	45.2%
Reference Approach	-	3.68	-	-	3.68	89.4%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	-	-	0.00	-
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.06	-	-	0.06	95.8%

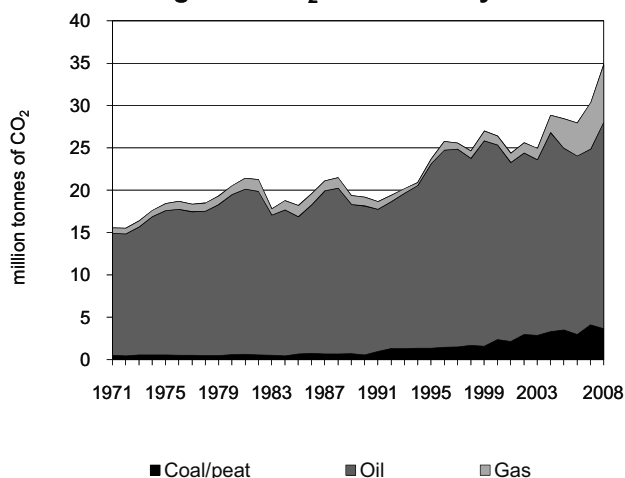
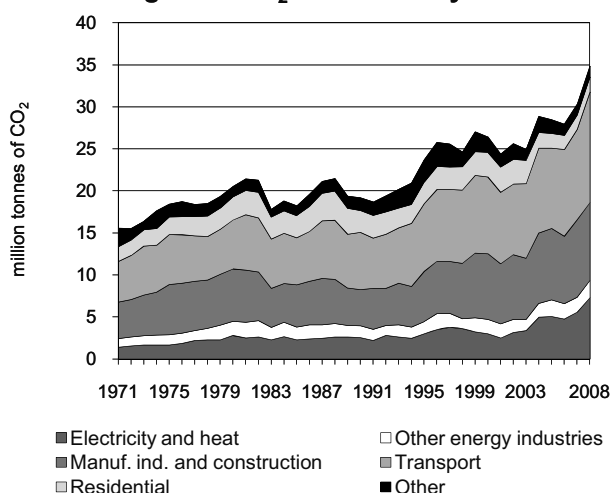
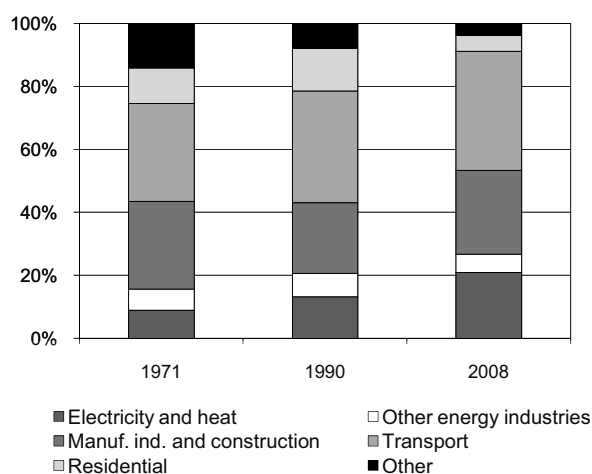
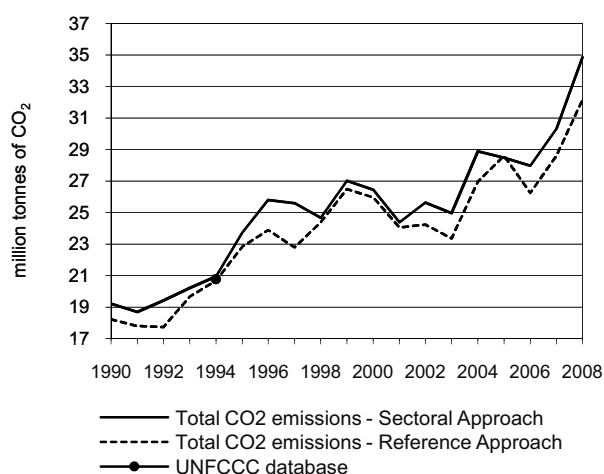
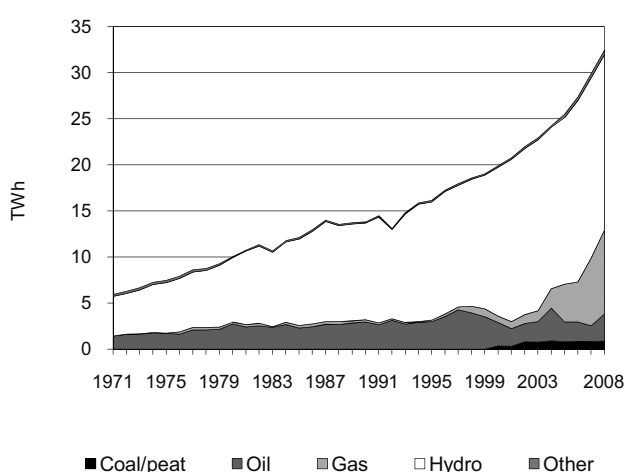
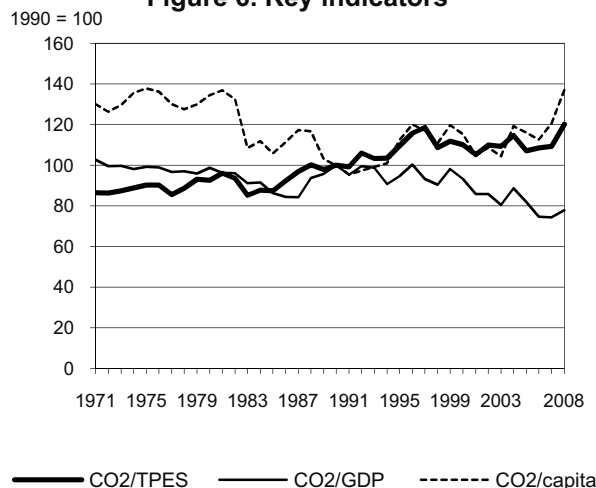
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	3.34	113.5%	10.9	10.9
Residential - oil	0.18	45.2%	0.6	11.5
Manufacturing industries - oil	0.11	-29.1%	0.4	11.9
Other transport - oil	0.05	18.1%	0.2	12.1
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>3.68</i>	<i>92.1%</i>	<i>12.1</i>	<i>12.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Peru

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Peru

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	19.21	23.73	26.44	28.48	27.96	30.32	34.86	81.5%
CO ₂ Reference Approach (Mt of CO ₂)	18.22	22.82	25.97	28.60	26.24	28.62	32.16	76.5%
TPES (PJ)	408	459	510	564	547	589	616	51.1%
TPES (Mtoe)	9.73	10.97	12.17	13.48	13.06	14.07	14.71	51.1%
GDP (billion 2000 USD)	36.09	47.13	53.29	65.43	70.50	76.74	84.29	133.6%
GDP PPP (billion 2000 USD)	83.02	108.42	122.59	150.52	162.17	176.54	193.90	133.6%
Population (millions)	21.78	23.94	26.00	27.84	28.18	28.51	28.84	32.4%
CO ₂ / TPES (t CO ₂ per TJ)	47.1	51.7	51.9	50.4	51.1	51.5	56.6	20.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.53	0.50	0.50	0.44	0.40	0.40	0.41	-22.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.23	0.22	0.22	0.19	0.17	0.17	0.18	-22.3%
CO ₂ / population (t CO ₂ per capita)	0.88	0.99	1.02	1.02	0.99	1.06	1.21	37.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	3.68	24.37	6.82	-	34.86	81.5%
Main activity producer elec. and heat	0.98	1.52	4.14	-	6.64	723.8%
Unallocated autoproducers	-	0.51	0.15	-	0.66	-61.8%
Other energy industries	-	1.05	0.99	-	2.04	42.6%
Manufacturing industries and construction	2.70	5.39	1.17	-	9.26	115.1%
Transport	-	12.90	0.27	-	13.17	93.5%
<i>of which: road</i>	-	12.86	-	-	12.86	96.3%
Other	-	3.00	0.09	-	3.09	-25.1%
<i>of which: residential</i>	-	1.77	0.01	-	1.78	-31.5%
Reference Approach	3.69	21.65	6.82	-	32.16	76.5%
Diff. due to losses and/or transformation	0.03	- 0.20	-	-	- 0.17	
Statistical differences	- 0.02	- 2.52	0.01	-	- 2.53	
<i>Memo: international marine bunkers</i>	-	0.47	-	-	0.47	+
<i>Memo: international aviation bunkers</i>	-	1.78	-	-	1.78	176.5%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	12.86	96.3%	19.8	19.8
Manufacturing industries - oil	5.39	45.7%	8.3	28.1
Main activity prod. elec. and heat - gas	4.14	x	6.4	34.5
Manufacturing industries - coal/peat	2.70	393.0%	4.2	38.7
Residential - oil	1.77	-28.4%	2.7	41.4
Main activity prod. elec. and heat - oil	1.52	88.7%	2.3	43.8
Non-specified other - oil	1.23	-19.5%	1.9	45.7
Manufacturing industries - gas	1.17	+	1.8	47.5
Other energy industries - oil	1.05	49.4%	1.6	49.1
Other energy industries - gas	0.99	36.0%	1.5	50.6
Main activity prod. elec. and heat - coal/peat	0.98	x	1.5	52.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>34.86</i>	<i>81.5%</i>	<i>53.8</i>	<i>53.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Philippines

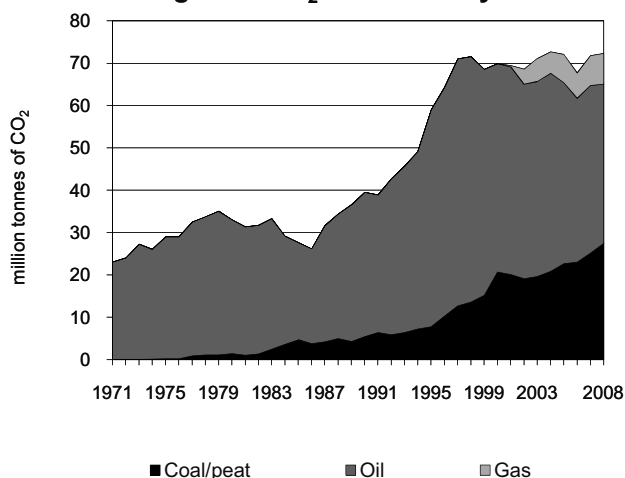
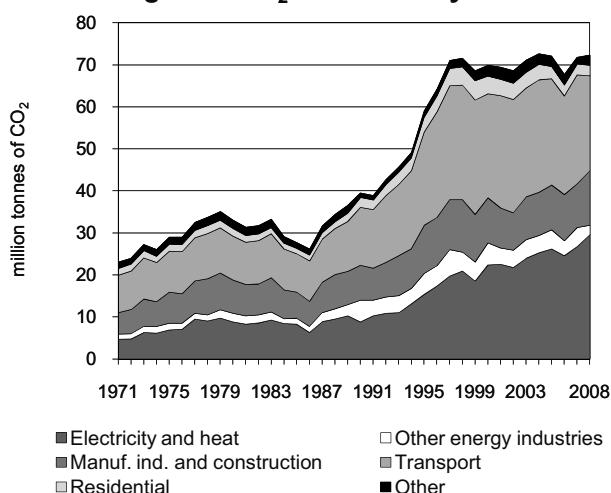
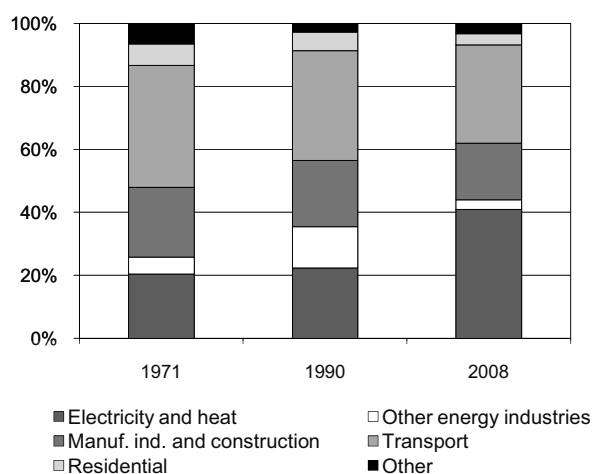
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

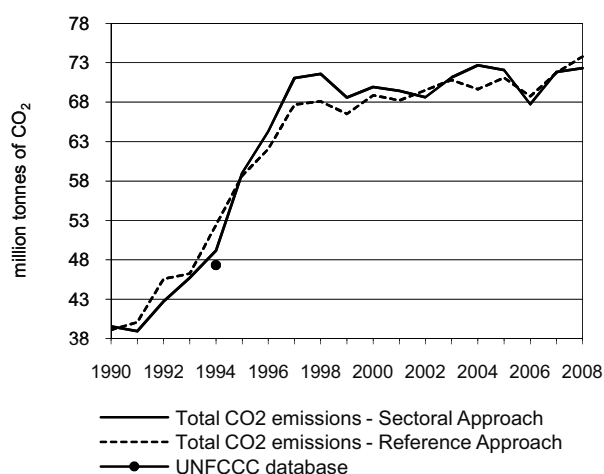


Figure 5. Electricity generation by fuel

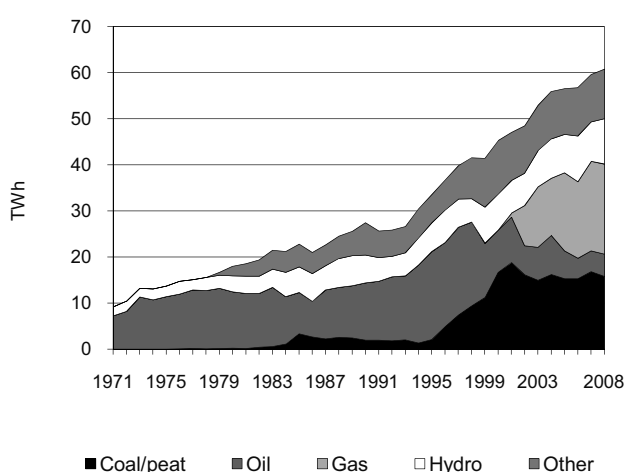
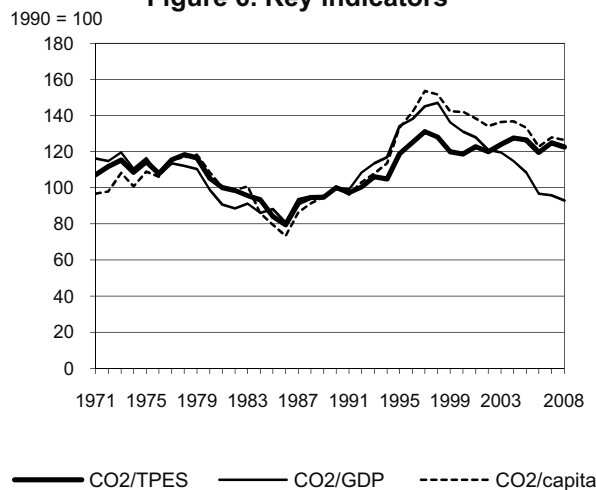


Figure 6. Key indicators



Philippines

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	39.54	59.05	69.94	72.10	67.74	71.82	72.34	82.9%
CO ₂ Reference Approach (Mt of CO ₂)	39.11	58.67	68.86	71.10	68.74	71.76	73.78	88.6%
TPES (PJ)	1 151	1 446	1 715	1 661	1 649	1 674	1 719	49.4%
TPES (Mtoe)	27.50	34.54	40.96	39.67	39.38	39.99	41.07	49.4%
GDP (billion 2000 USD)	56.23	62.59	75.91	94.52	99.57	106.62	110.71	96.9%
GDP PPP (billion 2000 USD)	226.29	251.89	305.50	380.39	400.71	429.07	445.54	96.9%
Population (millions)	62.43	69.97	77.69	85.50	87.10	88.72	90.35	44.7%
CO ₂ / TPES (t CO ₂ per TJ)	34.4	40.8	40.8	43.4	41.1	42.9	42.1	22.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.70	0.94	0.92	0.76	0.68	0.67	0.65	-7.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.17	0.23	0.23	0.19	0.17	0.17	0.16	-7.0%
CO ₂ / population (t CO ₂ per capita)	0.63	0.84	0.90	0.84	0.78	0.81	0.80	26.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	27.45	37.67	7.21	-	72.34	82.9%
Main activity producer elec. and heat	19.48	3.46	6.67	-	29.61	234.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	1.83	0.38	-	2.22	-57.1%
Manufacturing industries and construction	7.97	4.87	0.16	-	13.00	56.4%
Transport	-	22.61	-	-	22.61	63.8%
<i>of which: road</i>	-	20.36	-	-	20.36	76.0%
Other	-	4.91	-	-	4.91	43.6%
<i>of which: residential</i>	-	2.52	-	-	2.52	7.5%
Reference Approach	26.19	40.13	7.46	-	73.78	88.6%
Diff. due to losses and/or transformation	0.04	1.06	-	-	1.10	
Statistical differences	- 1.30	1.40	0.24	-	0.34	
<i>Memo: international marine bunkers</i>	-	0.72	-	-	0.72	253.3%
<i>Memo: international aviation bunkers</i>	-	2.99	-	-	2.99	162.1%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	20.36	76.0%	13.5	13.5
Main activity prod. elec. and heat - coal/peat	19.48	887.2%	12.9	26.3
Manufacturing industries - coal/peat	7.97	170.4%	5.3	31.6
Main activity prod. elec. and heat - gas	6.67	x	4.4	36.0
Manufacturing industries - oil	4.87	-9.4%	3.2	39.3
Main activity prod. elec. and heat - oil	3.46	-49.7%	2.3	41.5
Residential - oil	2.52	7.5%	1.7	43.2
Non-specified other - oil	2.39	122.4%	1.6	44.8
Other transport - oil	2.24	0.7%	1.5	46.3
Other energy industries - oil	1.83	-60.4%	1.2	47.5
Other energy industries - gas	0.38	x	0.3	47.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>72.34</i>	<i>82.9%</i>	<i>47.8</i>	<i>47.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Poland

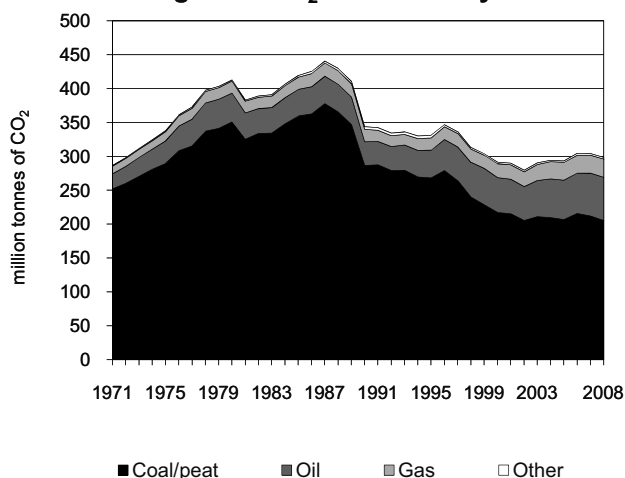
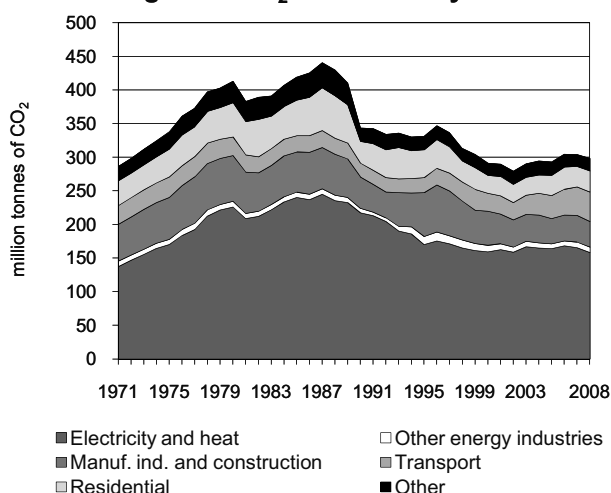
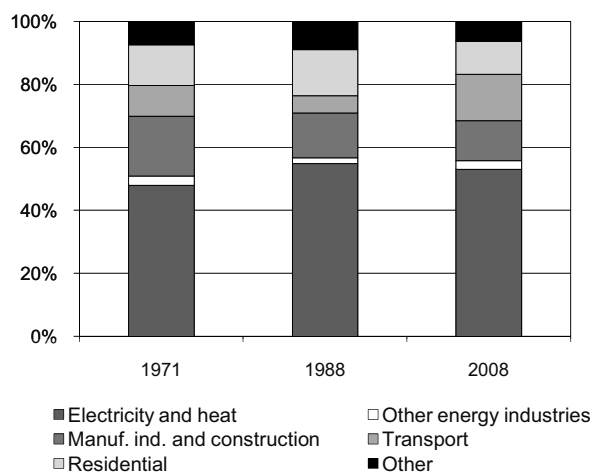
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

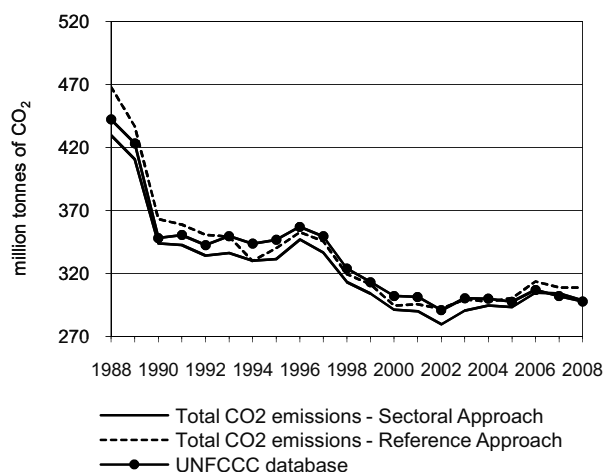


Figure 5. Electricity generation by fuel

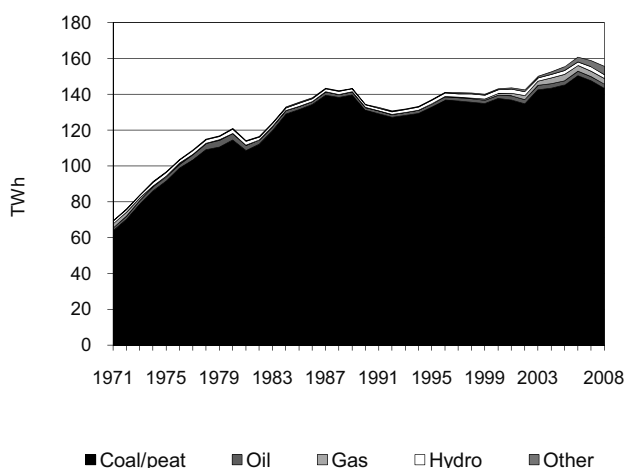
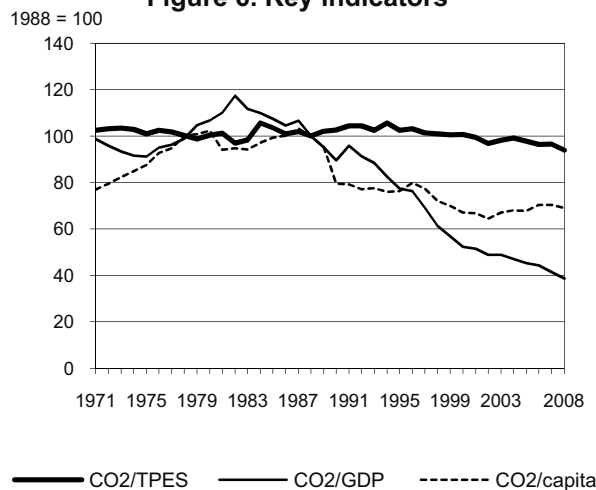


Figure 6. Key indicators



Poland *

Key indicators

	1988	1990	1995	2005	2006	2007	2008	% change 88-08
CO ₂ Sectoral Approach (Mt of CO ₂)	429.78	343.82	331.36	293.45	304.84	304.22	298.69	-30.5%
CO ₂ Reference Approach (Mt of CO ₂)	467.99	363.26	339.99	300.41	313.67	308.91	308.80	-34.0%
TPES (PJ)	5 538	4 317	4 165	3 868	4 074	4 061	4 098	-26.0%
TPES (Mtoe)	132.27	103.10	99.47	92.38	97.30	97.00	97.88	-26.0%
GDP (billion 2000 USD)	132.16	118.17	131.59	199.36	211.78	226.15	237.47	79.7%
GDP PPP (billion 2000 USD)	311.96	278.94	310.63	470.60	499.91	533.83	560.54	79.7%
Population (millions)	37.86	38.03	38.28	38.16	38.13	38.12	38.12	0.7%
CO ₂ / TPES (t CO ₂ per TJ)	77.6	79.7	79.6	75.9	74.8	74.9	72.9	-6.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	3.25	2.91	2.52	1.47	1.44	1.35	1.26	-61.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.38	1.23	1.07	0.62	0.61	0.57	0.53	-61.3%
CO ₂ / population (t CO ₂ per capita)	11.35	9.04	8.66	7.69	7.99	7.98	7.84	-31.0%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Poland is allowed to use 1988 as the base year.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 88-08
Sectoral Approach	205.42	63.90	26.79	2.58	298.69	-30.5%
Main activity producer elec. and heat	149.17	0.68	2.67	0.41	152.93	-8.1%
Unallocated autoproducers	4.02	1.10	0.22	0.14	5.48	-92.1%
Other energy industries	3.24	3.57	1.57	0.01	8.38	3.5%
Manufacturing industries and construction	20.26	5.29	10.16	2.01	37.73	-38.0%
Transport	-	43.38	0.78	-	44.16	84.7%
<i>of which: road</i>	-	42.67	-	-	42.67	109.8%
Other	28.73	9.88	11.39	0.00	50.00	-50.6%
<i>of which: residential</i>	21.73	2.23	7.34	-	31.29	-50.3%
Reference Approach	212.06	66.36	27.80	2.58	308.80	-34.0%
Diff. due to losses and/or transformation	1.67	1.51	0.71	-	3.89	
Statistical differences	4.96	0.95	0.30	- 0.00	6.22	
<i>Memo: international marine bunkers</i>	-	0.87	-	-	0.87	-50.0%
<i>Memo: international aviation bunkers</i>	-	1.59	-	-	1.59	41.5%

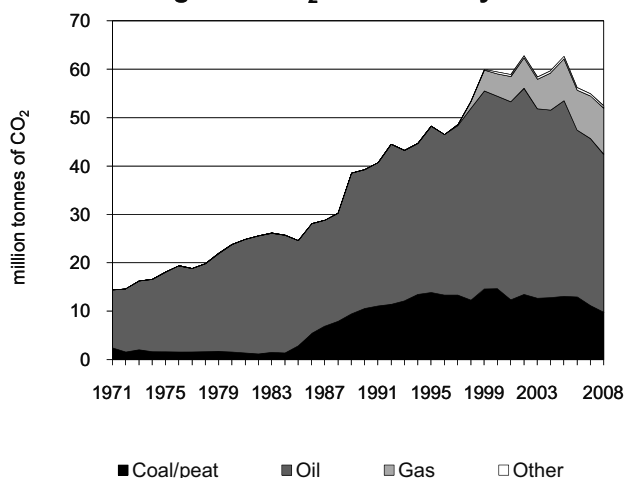
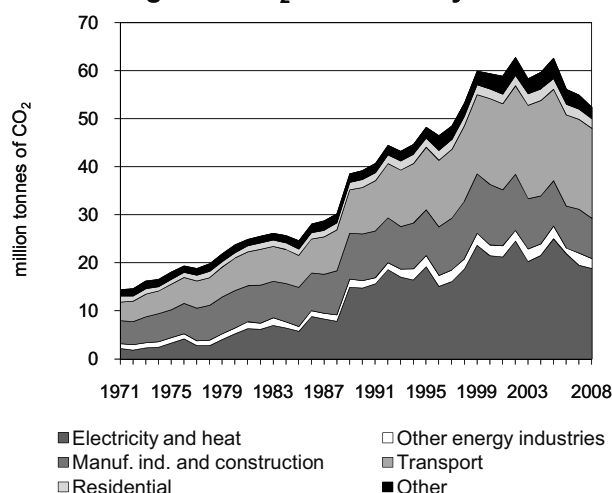
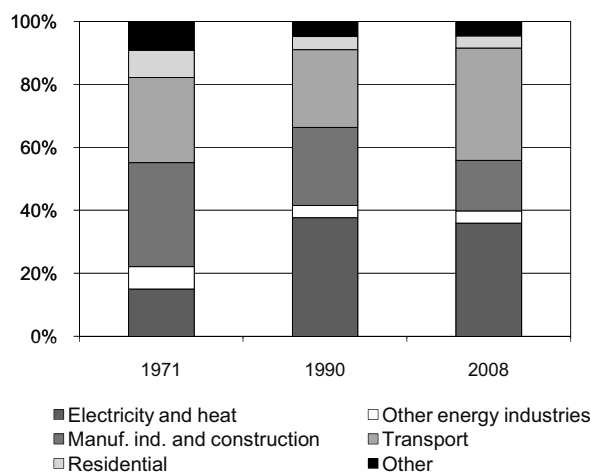
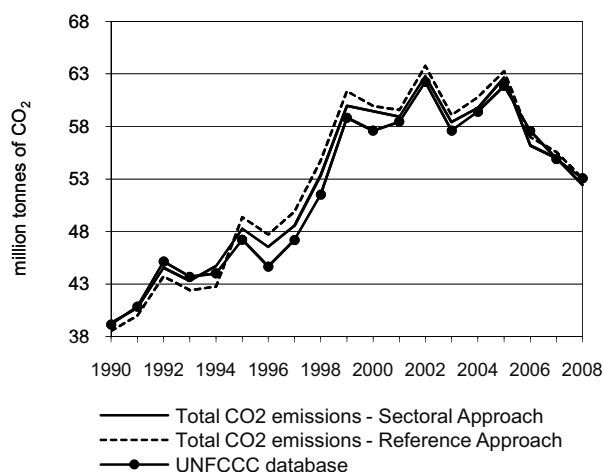
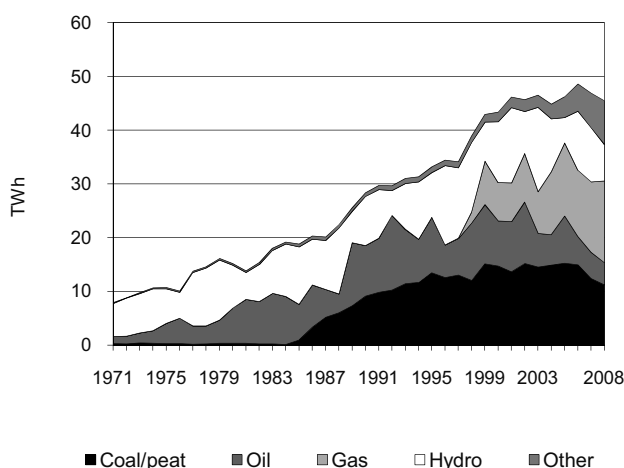
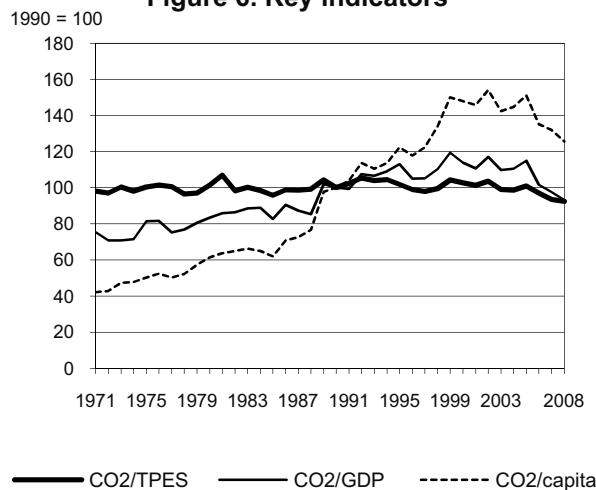
** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 88-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	149.17	-9.5%	37.6	37.6
Road - oil	42.67	109.8%	10.8	48.4
Residential - coal/peat	21.73	-61.8%	5.5	53.9
Manufacturing industries - coal/peat	20.26	-50.8%	5.1	59.0
Manufacturing industries - gas	10.16	-10.5%	2.6	61.6
Non-specified other - oil	7.65	97.1%	1.9	63.5
Residential - gas	7.34	28.1%	1.9	65.3
Non-specified other sectors - coal/peat	7.00	-79.0%	1.8	67.1
Manufacturing industries - oil	5.29	-18.4%	1.3	68.4
Non-specified other - gas	4.05	434.1%	1.0	69.5
Unallocated autoproducers - coal/peat	4.02	-93.7%	1.0	70.5
<i>Memo: total CO₂ from fuel combustion</i>	<i>298.69</i>	<i>-30.5%</i>	<i>75.4</i>	<i>75.4</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Portugal

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Portugal

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	39.28	48.27	59.44	62.66	56.20	54.98	52.44	33.5%
CO ₂ Reference Approach (Mt of CO ₂)	38.53	49.38	59.94	63.25	56.97	55.55	53.08	37.8%
TPES (PJ)	701	846	1 033	1 107	1 032	1 049	1 011	44.3%
TPES (Mtoe)	16.74	20.21	24.67	26.44	24.66	25.07	24.16	44.3%
GDP (billion 2000 USD)	84.75	92.22	112.65	117.66	119.27	121.51	121.46	43.3%
GDP PPP (billion 2000 USD)	131.46	143.05	174.75	182.52	185.02	188.48	188.42	43.3%
Population (millions)	10.00	10.03	10.23	10.55	10.58	10.61	10.62	6.3%
CO ₂ / TPES (t CO ₂ per TJ)	56.0	57.0	57.5	56.6	54.4	52.4	51.8	-7.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.46	0.52	0.53	0.53	0.47	0.45	0.43	-6.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.30	0.34	0.34	0.34	0.30	0.29	0.28	-6.9%
CO ₂ / population (t CO ₂ per capita)	3.93	4.81	5.81	5.94	5.31	5.18	4.94	25.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	9.77	32.69	9.55	0.43	52.44	33.5%
Main activity producer elec. and heat	9.49	1.86	4.57	-	15.92	11.9%
Unallocated autoproducers	-	1.10	1.40	0.43	2.93	399.7%
Other energy industries	-	1.86	0.20	-	2.07	35.0%
Manufacturing industries and construction	0.28	5.76	2.38	-	8.42	-13.5%
Transport	-	18.68	0.03	-	18.71	93.2%
<i>of which: road</i>	-	18.12	0.03	-	18.15	100.8%
Other	-	3.43	0.97	-	4.40	24.8%
<i>of which: residential</i>	-	1.45	0.54	-	1.98	21.7%
Reference Approach	9.82	33.16	9.67	0.43	53.08	37.8%
Diff. due to losses and/or transformation	-	0.54	0.05	-	0.59	
Statistical differences	0.05	- 0.08	0.07	-	0.05	
<i>Memo: international marine bunkers</i>	-	2.24	-	-	2.24	17.3%
<i>Memo: international aviation bunkers</i>	-	2.76	-	-	2.76	85.5%

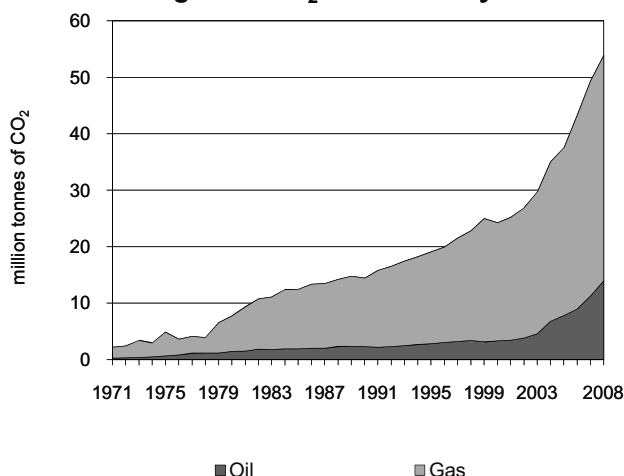
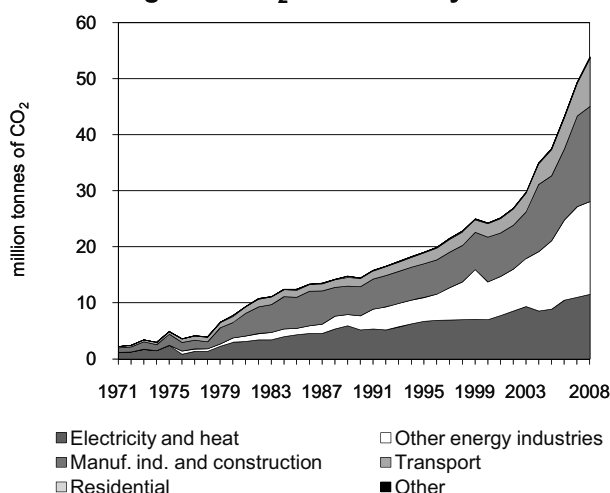
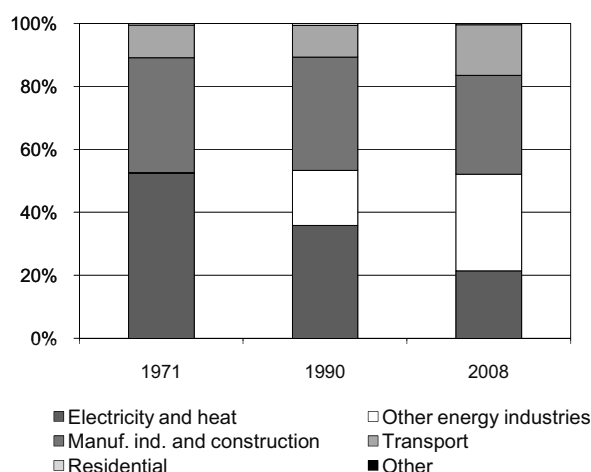
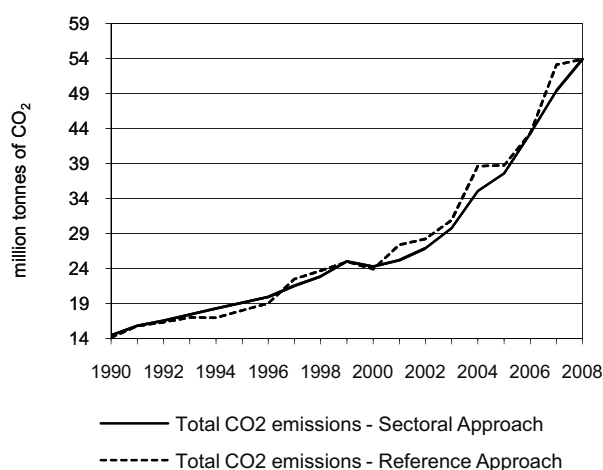
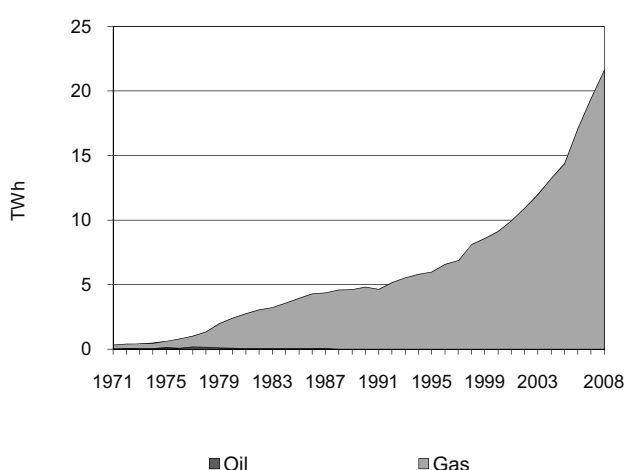
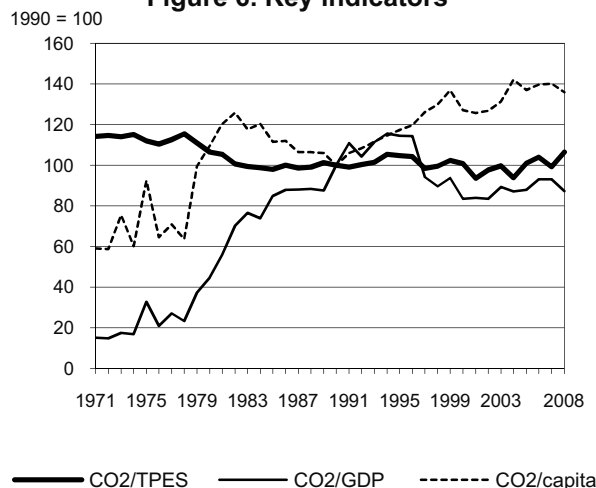
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	18.12	100.5%	23.3	23.3
Main activity prod. elec. and heat - coal/peat	9.49	20.5%	12.2	35.5
Manufacturing industries - oil	5.76	-21.7%	7.4	42.9
Main activity prod. elec. and heat - gas	4.57	x	5.9	48.8
Manufacturing industries - gas	2.38	x	3.1	51.8
Non-specified other - oil	1.98	6.0%	2.6	54.4
Main activity prod. elec. and heat - oil	1.86	-70.6%	2.4	56.8
Other energy industries - oil	1.86	24.4%	2.4	59.2
Residential - oil	1.45	-5.6%	1.9	61.0
Unallocated autoproducers - gas	1.40	x	1.8	62.8
Unallocated autoproducers - oil	1.10	175.0%	1.4	64.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>52.44</i>	<i>33.5%</i>	<i>67.4</i>	<i>67.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Qatar

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Qatar

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	14.47	19.10	24.27	37.56	43.28	49.41	53.91	272.7%
CO ₂ Reference Approach (Mt of CO ₂)	14.13	18.02	23.93	38.74	43.32	53.14	53.85	281.2%
TPES (PJ)	288	364	480	742	830	993	1 010	250.2%
TPES (Mtoe)	6.89	8.69	11.46	17.73	19.83	23.71	24.12	250.2%
GDP (billion 2000 USD)	8.82	10.18	17.76	26.07	28.36	32.40	37.71	327.4%
GDP PPP (billion 2000 USD)	7.90	9.12	15.91	23.35	25.40	29.02	33.78	327.4%
Population (millions)	0.47	0.53	0.62	0.89	1.00	1.14	1.28	174.3%
CO ₂ / TPES (t CO ₂ per TJ)	50.2	52.5	50.6	50.6	52.1	49.8	53.4	6.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.64	1.88	1.37	1.44	1.53	1.53	1.43	-12.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.83	2.09	1.53	1.61	1.70	1.70	1.60	-12.8%
CO ₂ / population (t CO ₂ per capita)	30.98	36.31	39.34	42.44	43.24	43.42	42.09	35.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	13.99	39.92	-	53.91	272.7%
Main activity producer elec. and heat	-	-	2.98	-	2.98	147.8%
Unallocated autoproducers	-	-	8.56	-	8.56	114.9%
Other energy industries	-	0.58	15.98	-	16.56	555.5%
Manufacturing industries and construction	-	4.55	12.40	-	16.96	226.0%
Transport	-	8.62	-	-	8.62	491.1%
<i>of which: road</i>	-	8.62	-	-	8.62	491.1%
Other	-	0.24	-	-	0.24	153.5%
<i>of which: residential</i>	-	0.24	-	-	0.24	153.5%
Reference Approach	-	13.68	40.16	-	53.85	281.2%
Diff. due to losses and/or transformation	-	0.06	-	-	0.06	
Statistical differences	-	- 0.37	0.24	-	- 0.12	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	2.71	-	-	2.71	686.2%

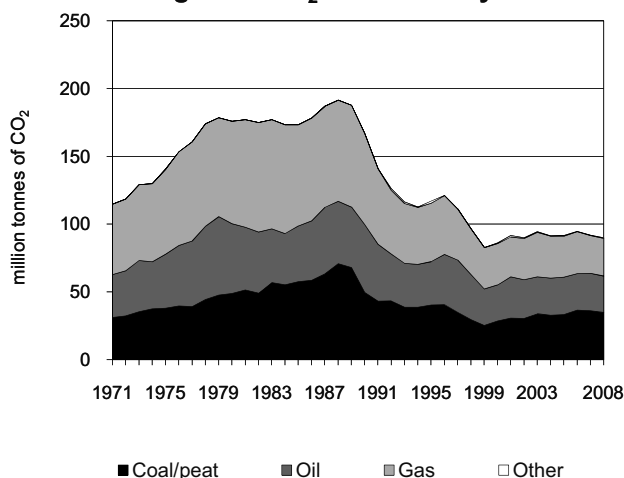
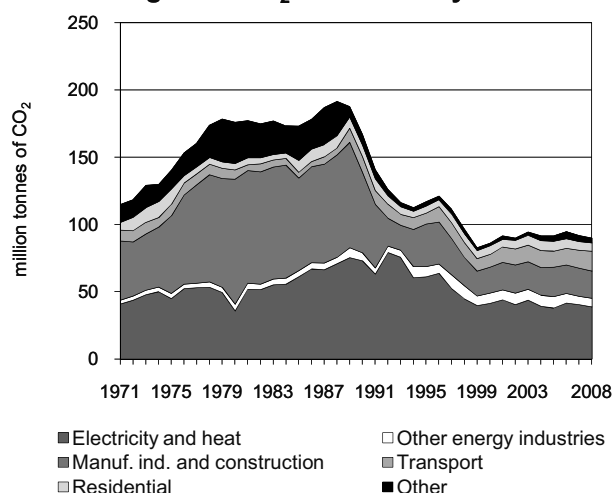
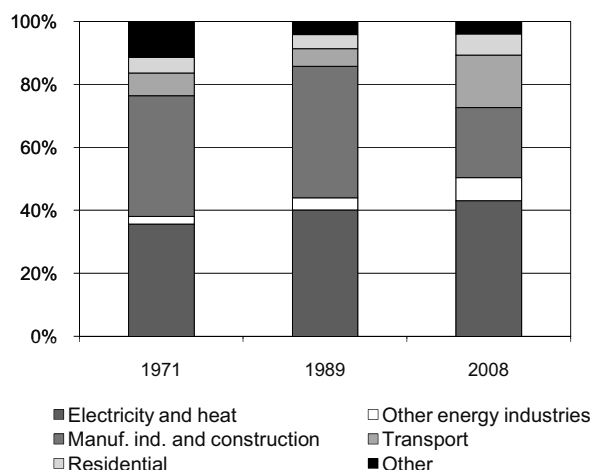
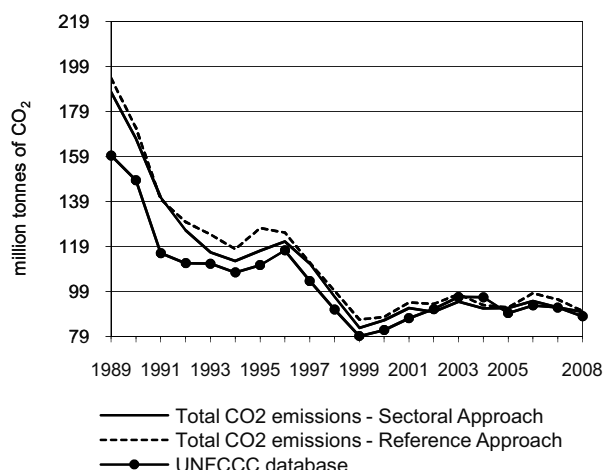
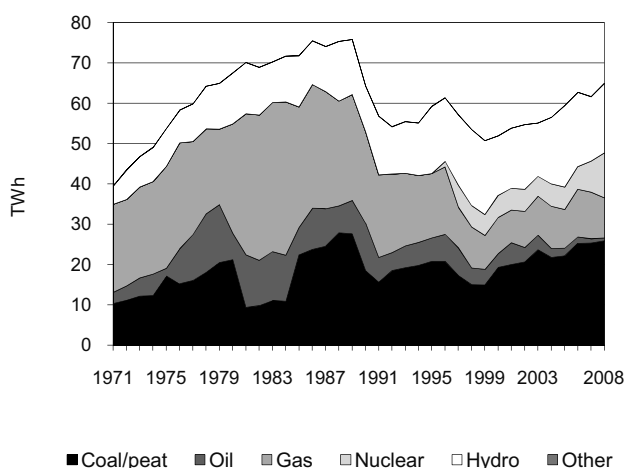
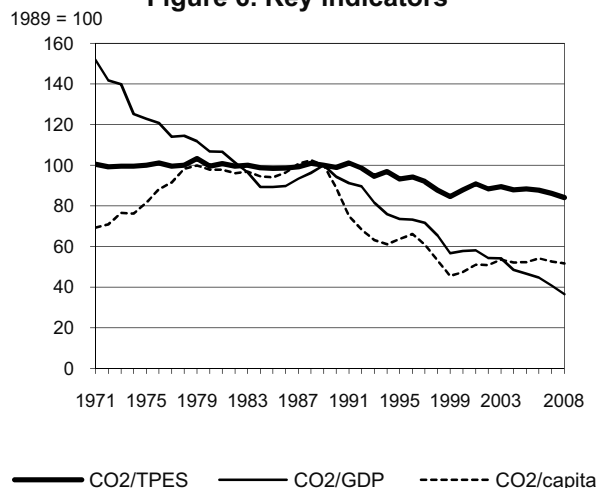
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Other energy industries - gas	15.98	631.8%	22.0	22.0
Manufacturing industries - gas	12.40	159.0%	17.1	39.1
Road - oil	8.62	491.1%	11.9	51.0
Unallocated autoproducers - gas	8.56	114.9%	11.8	62.8
Manufacturing industries - oil	4.55	+	6.3	69.1
Main activity prod. elec. and heat - gas	2.98	147.8%	4.1	73.2
Other energy industries - oil	0.58	69.3%	0.8	74.0
Residential - oil	0.24	153.5%	0.3	74.4
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>53.91</i>	<i>272.7%</i>	<i>74.4</i>	<i>74.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Romania

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Romania *

Key indicators

	1989	1990	1995	2005	2006	2007	2008	% change 89-08
CO ₂ Sectoral Approach (Mt of CO ₂)	187.82	167.08	117.07	91.70	94.86	91.93	89.93	-52.1%
CO ₂ Reference Approach (Mt of CO ₂)	193.68	171.76	127.17	91.94	98.17	95.56	90.45	-53.3%
TPES (PJ)	2 897	2 606	1 938	1 603	1 668	1 646	1 649	-43.1%
TPES (Mtoe)	69.18	62.25	46.28	38.28	39.84	39.32	39.38	-43.1%
GDP (billion 2000 USD)	46.60	43.99	39.50	48.90	52.76	55.93	61.09	31.1%
GDP PPP (billion 2000 USD)	166.36	157.05	141.03	174.57	188.36	199.67	218.09	31.1%
Population (millions)	23.15	23.21	22.68	21.63	21.59	21.55	21.51	-7.1%
CO ₂ / TPES (t CO ₂ per TJ)	64.8	64.1	60.4	57.2	56.9	55.8	54.5	-15.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.03	3.80	2.96	1.88	1.80	1.64	1.47	-63.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.13	1.06	0.83	0.53	0.50	0.46	0.41	-63.5%
CO ₂ / population (t CO ₂ per capita)	8.11	7.20	5.16	4.24	4.39	4.27	4.18	-48.5%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Romania is allowed to use 1989 as the base year.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 89-08
Sectoral Approach	34.86	26.93	27.86	0.28	89.93	-52.1%
Main activity producer elec. and heat	26.30	0.85	8.10	0.00	35.25	-48.9%
Unallocated autoproducers	2.46	0.31	0.67	0.02	3.47	-46.4%
Other energy industries	0.34	4.58	1.65	0.05	6.62	-9.4%
Manufacturing industries and construction	5.58	4.04	10.21	0.20	20.04	-74.4%
Transport	-	14.82	0.12	-	14.93	42.4%
<i>of which: road</i>	-	13.64	-	-	13.64	51.9%
Other	0.18	2.33	7.11	-	9.62	-40.5%
<i>of which: residential</i>	0.14	0.79	5.11	-	6.05	-27.4%
Reference Approach	37.52	24.23	28.36	0.34	90.45	-53.3%
Diff. due to losses and/or transformation	1.38	-2.90	1.04	-	-0.48	
Statistical differences	1.28	0.19	-0.54	0.06	1.00	
<i>Memo: international marine bunkers</i>	-	0.22	-	-	0.22	..
<i>Memo: international aviation bunkers</i>	-	0.36	-	-	0.36	-51.4%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 89-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	26.30	-24.4%	17.8	17.8
Road - oil	13.64	51.9%	9.2	27.0
Manufacturing industries - gas	10.21	-77.7%	6.9	33.9
Main activity prod. elec. and heat - gas	8.10	-63.6%	5.5	39.4
Manufacturing industries - coal/peat	5.58	-75.0%	3.8	43.2
Residential - gas	5.11	0.7%	3.5	46.6
Other energy industries - oil	4.58	-27.8%	3.1	49.7
Manufacturing industries - oil	4.04	-61.1%	2.7	52.5
Unallocated autoproducers - coal/peat	2.46	-61.9%	1.7	54.1
Non-specified other - gas	2.00	0.8%	1.4	55.5
Other energy industries - gas	1.65	x	1.1	56.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>89.93</i>	<i>-52.1%</i>	<i>60.8</i>	<i>60.8</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Russian Federation

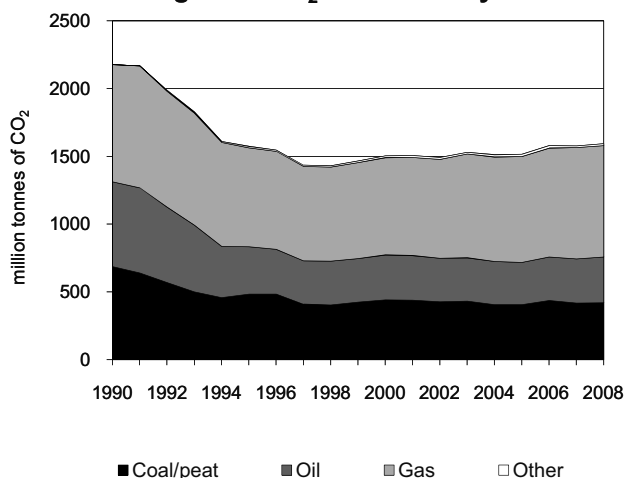
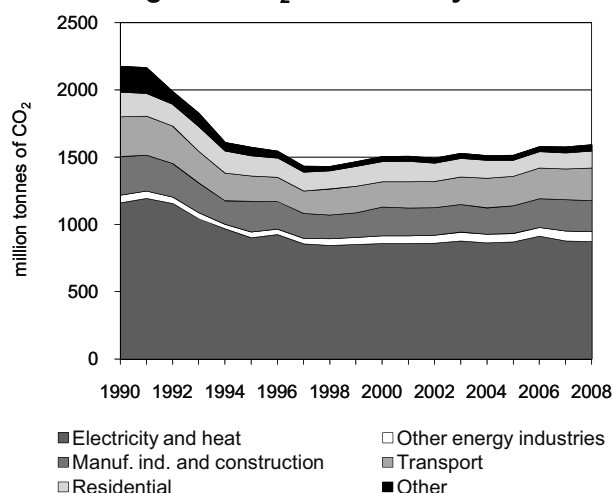
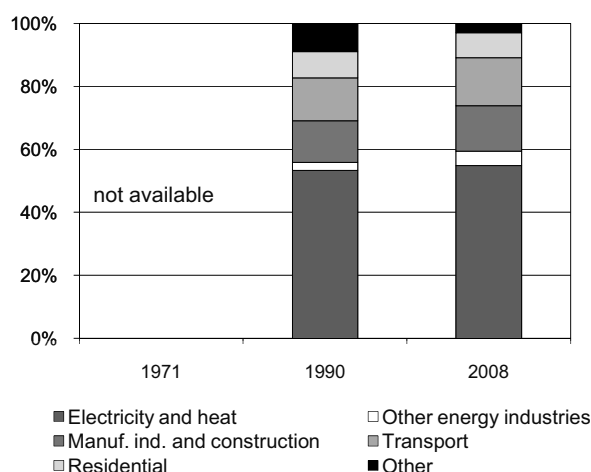
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

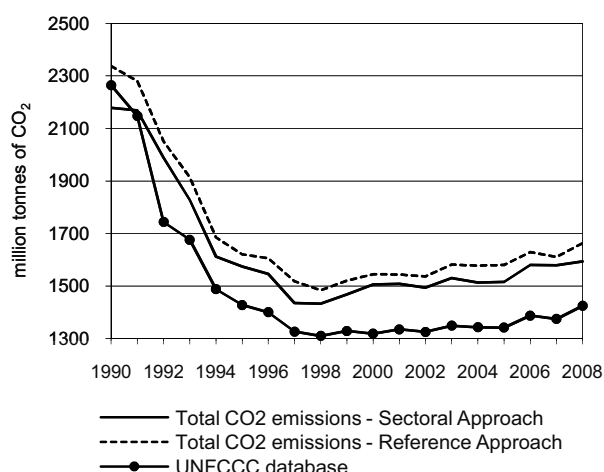


Figure 5. Electricity generation by fuel

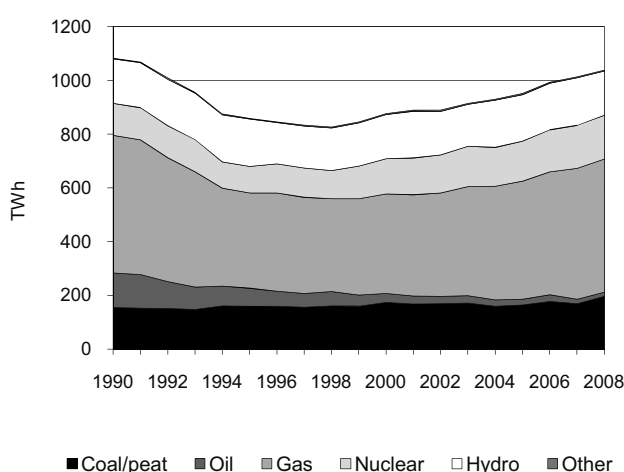
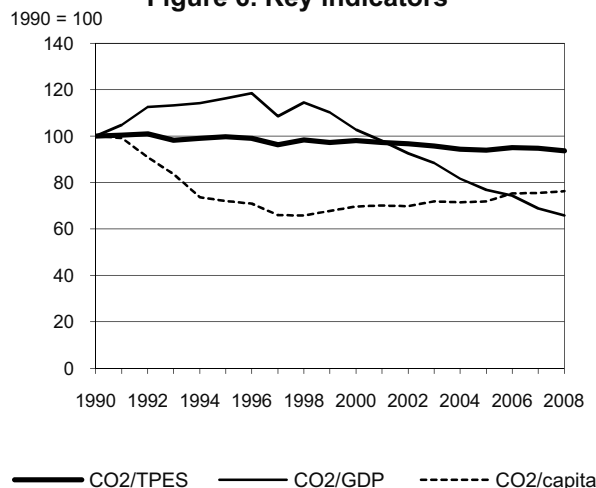


Figure 6. Key indicators



Russian Federation

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2 178.8	1 574.5	1 505.5	1 516.2	1 579.8	1 578.5	1 593.8	-26.8%
CO ₂ Reference Approach (Mt of CO ₂)	2 337.2	1 620.4	1 545.2	1 579.8	1 629.1	1 611.3	1 662.8	-28.9%
TPES (PJ)	36 810	26 655	25 927	27 286	28 080	28 160	28 753	-21.9%
TPES (Mtoe)	879.2	636.6	619.3	651.7	670.7	672.6	686.8	-21.9%
GDP (billion 2000 USD)	386.2	239.9	259.7	349.5	376.4	406.7	429.5	11.2%
GDP PPP (billion 2000 USD)	1 523.6	922.2	998.3	1 343.6	1 446.7	1 563.4	1 651.2	8.4%
Population (millions)	148.0	148.4	146.6	143.1	142.5	142.1	141.8	-4.2%
CO ₂ / TPES (t CO ₂ per TJ)	59.2	59.1	58.1	55.6	56.3	56.1	55.4	-6.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	5.64	6.56	5.80	4.34	4.20	3.88	3.71	-34.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.43	1.71	1.51	1.13	1.09	1.01	0.97	-32.5%
CO ₂ / population (t CO ₂ per capita)	14.72	10.61	10.27	10.59	11.09	11.11	11.24	-23.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

million tonnes of CO ₂	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	421.7	336.7	821.5	14.0	1 593.8	-26.8%
Main activity producer elec. and heat	222.6	13.0	318.2	0.1	553.9	-33.7%
Unallocated autoproducers	100.0	28.6	178.4	13.0	320.0	-2.0%
Other energy industries	5.7	37.8	30.2	0.4	74.1	30.6%
Manufacturing industries and construction	68.9	52.7	107.6	0.3	229.5	-20.1%
Transport	-	160.6	82.8	-	243.3	-17.8%
<i>of which: road</i>	-	131.6	0.3	-	131.9	-13.4%
Other	24.5	44.0	104.4	0.2	173.0	-54.1%
<i>of which: residential</i>	11.8	21.5	93.2	-	126.5	-30.9%
Reference Approach	456.2	355.2	837.4	14.0	1 662.8	-28.9%
Diff. due to losses and/or transformation	- 0.9	18.5	16.0	-	33.5	
Statistical differences	35.4	-	0.0	- 0.0	35.4	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	17.3	-	-	17.3	-34.2%

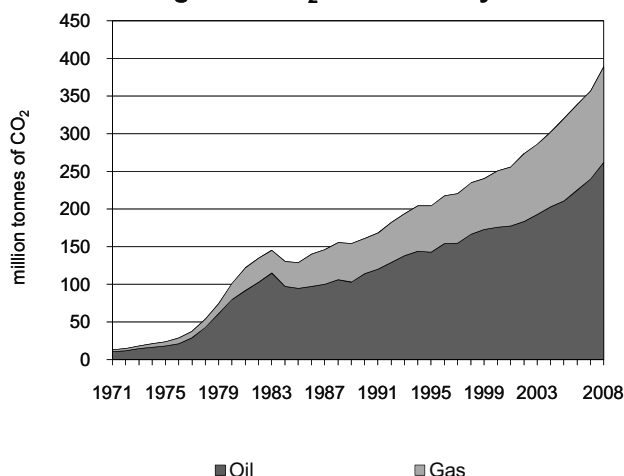
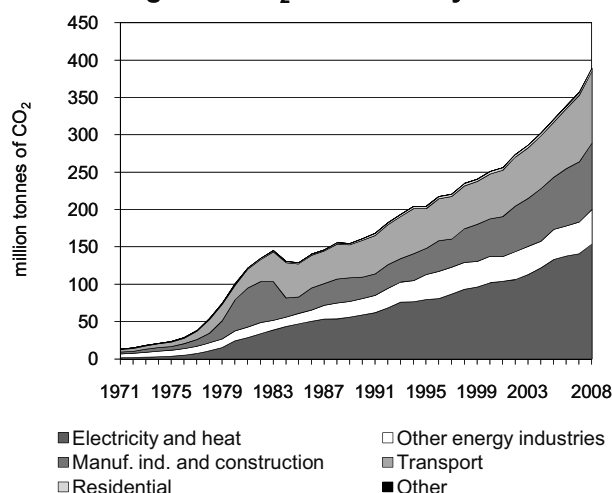
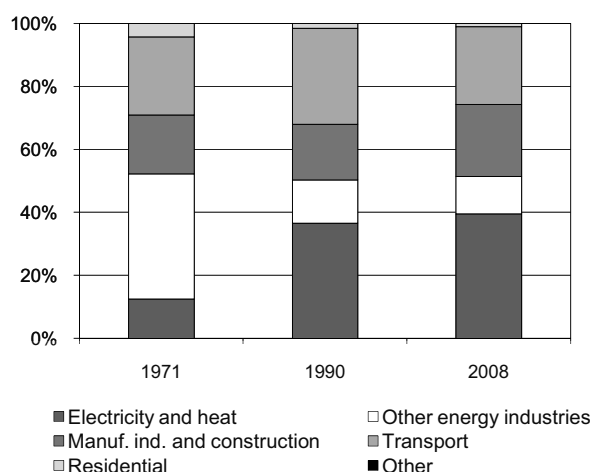
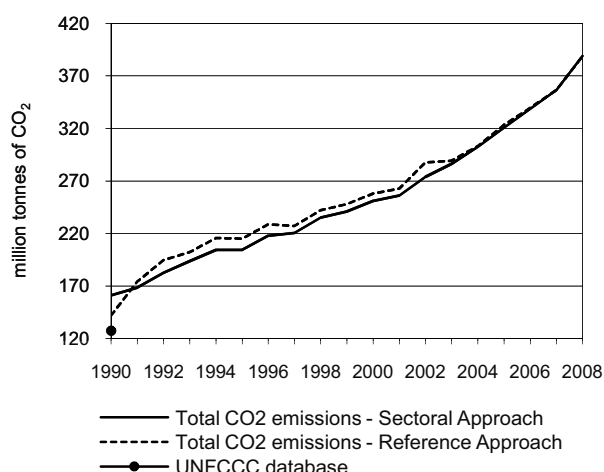
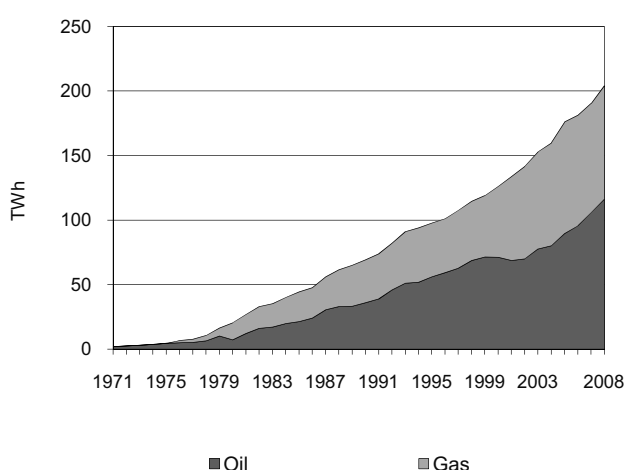
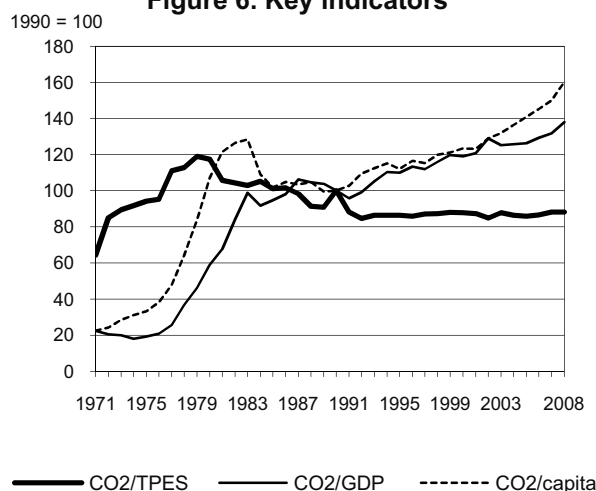
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	318.2	-8.3%	13.3	13.3
Main activity prod. elec. and heat - coal/peat	222.6	-36.0%	9.3	22.6
Unallocated autoproducers - gas	178.4	-3.6%	7.4	30.0
Road - oil	131.6	-12.1%	5.5	35.5
Manufacturing industries - gas	107.6	3.2%	4.5	40.0
Unallocated autoproducers - coal/peat	100.0	18.8%	4.2	44.1
Residential - gas	93.2	-15.3%	3.9	48.0
Other transport - gas	82.4	7.1%	3.4	51.5
Manufacturing industries - coal/peat	68.9	-28.9%	2.9	54.3
Manufacturing industries - oil	52.7	-38.7%	2.2	56.5
Other energy industries - oil	37.8	-2.2%	1.6	58.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>1 593.8</i>	<i>-26.8%</i>	<i>66.5</i>	<i>66.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Saudi Arabia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Saudi Arabia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	161.29	204.37	250.97	320.65	338.82	356.82	389.16	141.3%
CO ₂ Reference Approach (Mt of CO ₂)	141.85	215.12	257.98	323.62	339.51	356.63	388.77	174.1%
TPES (PJ)	2 472	3 629	4 384	5 718	5 992	6 201	6 766	173.7%
TPES (Mtoe)	59.04	86.67	104.70	136.56	143.12	148.12	161.60	173.7%
GDP (billion 2000 USD)	144.13	166.00	188.44	226.95	234.11	242.03	252.08	74.9%
GDP PPP (billion 2000 USD)	214.80	247.40	280.85	338.23	348.91	360.71	375.69	74.9%
Population (millions)	16.38	18.51	20.66	23.12	23.68	24.16	24.65	50.5%
CO ₂ / TPES (t CO ₂ per TJ)	65.2	56.3	57.3	56.1	56.5	57.5	57.5	-11.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.12	1.23	1.33	1.41	1.45	1.47	1.54	38.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.75	0.83	0.89	0.95	0.97	0.99	1.04	37.9%
CO ₂ / population (t CO ₂ per capita)	9.85	11.04	12.15	13.87	14.31	14.77	15.79	60.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

million tonnes of CO ₂	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	262.23	126.92	-	389.16	141.3%
Main activity producer elec. and heat	-	81.08	46.07	-	127.16	219.3%
Unallocated autoproducers	-	5.78	21.07	-	26.85	39.9%
Other energy industries	-	16.82	29.23	-	46.05	108.9%
Manufacturing industries and construction	-	58.55	30.55	-	89.10	210.8%
Transport	-	95.96	-	-	95.96	95.6%
<i>of which: road</i>	-	94.01	-	-	94.01	100.0%
Other	-	4.04	-	-	4.04	60.7%
<i>of which: residential</i>	-	4.04	-	-	4.04	60.7%
Reference Approach	-	261.84	126.92	-	388.77	174.1%
Diff. due to losses and/or transformation	-	- 0.39	-	-	- 0.39	
Statistical differences	-	-	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	8.85	-	-	8.85	54.3%
<i>Memo: international aviation bunkers</i>	-	5.86	-	-	5.86	-4.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	94.01	100.0%	20.2	20.2
Main activity prod. elec. and heat - oil	81.08	186.5%	17.4	37.6
Manufacturing industries - oil	58.55	179.4%	12.6	50.2
Main activity prod. elec. and heat - gas	46.07	299.6%	9.9	60.1
Manufacturing industries - gas	30.55	296.4%	6.6	66.7
Other energy industries - gas	29.23	185.8%	6.3	73.0
Unallocated autoproducers - gas	21.07	21.6%	4.5	77.5
Other energy industries - oil	16.82	42.4%	3.6	81.1
Unallocated autoproducers - oil	5.78	210.9%	1.2	82.4
Residential - oil	4.04	60.7%	0.9	83.2
Other transport - oil	1.95	-4.6%	0.4	83.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>389.16</i>	<i>141.3%</i>	<i>83.7</i>	<i>83.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Senegal

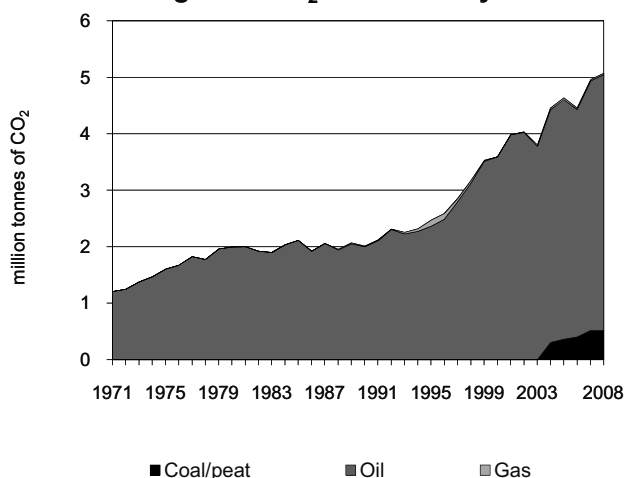
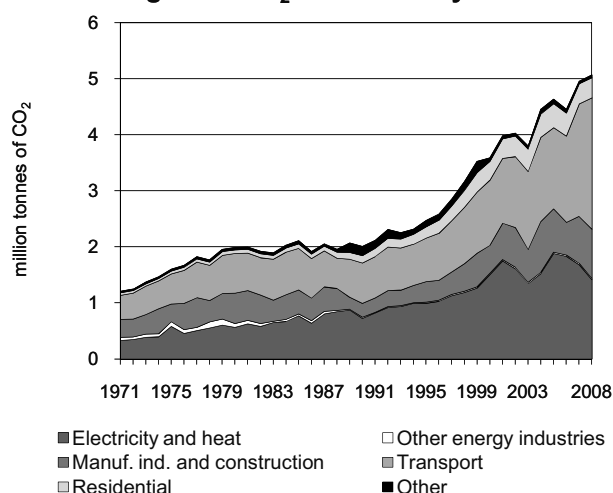
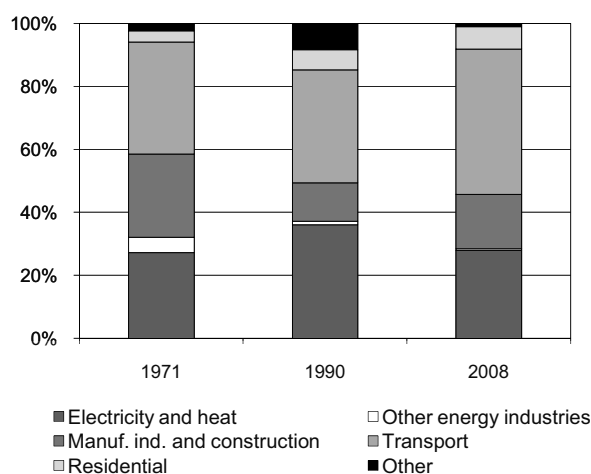
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

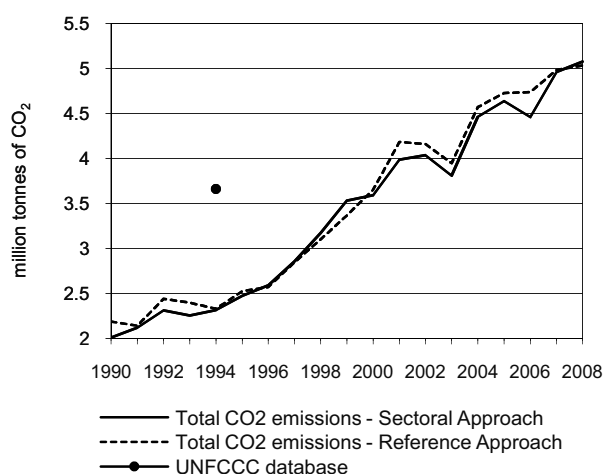


Figure 5. Electricity generation by fuel

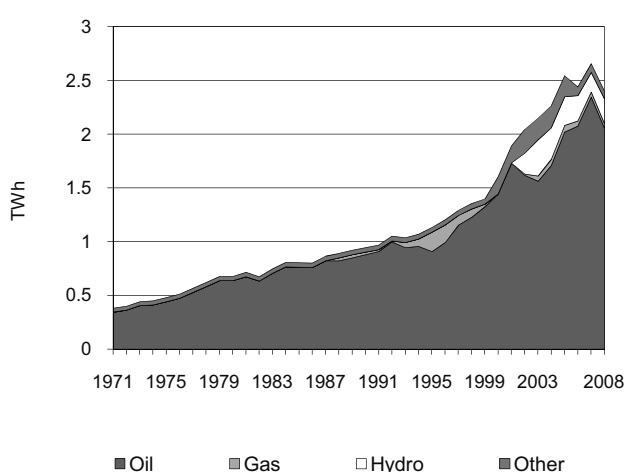
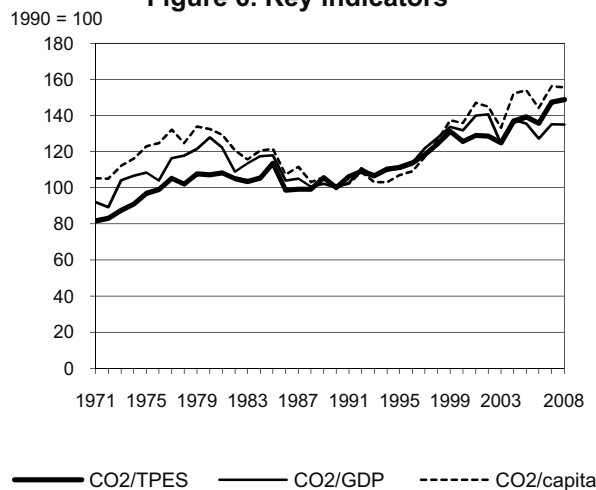


Figure 6. Key indicators



Senegal

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.01	2.47	3.59	4.64	4.46	4.96	5.07	152.1%
CO ₂ Reference Approach (Mt of CO ₂)	2.19	2.53	3.65	4.73	4.74	4.98	5.03	130.1%
TPES (PJ)	71	78	100	117	115	118	120	69.5%
TPES (Mtoe)	1.69	1.86	2.40	2.79	2.75	2.82	2.86	69.5%
GDP (billion 2000 USD)	3.46	3.84	4.69	5.89	6.03	6.32	6.47	86.9%
GDP PPP (billion 2000 USD)	11.70	12.96	15.84	19.90	20.37	21.32	21.86	86.9%
Population (millions)	7.54	8.66	9.90	11.28	11.58	11.89	12.21	62.0%
CO ₂ / TPES (t CO ₂ per TJ)	28.5	31.7	35.8	39.7	38.7	42.0	42.4	48.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.58	0.64	0.77	0.79	0.74	0.79	0.78	34.9%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.17	0.19	0.23	0.23	0.22	0.23	0.23	34.9%
CO ₂ / population (t CO ₂ per capita)	0.27	0.29	0.36	0.41	0.38	0.42	0.42	55.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.52	4.53	0.02	-	5.07	152.1%
Main activity producer elec. and heat	-	1.22	0.02	-	1.24	74.3%
Unallocated autoproducers	-	0.17	-	-	0.17	+
Other energy industries	-	0.03	-	-	0.03	14.3%
Manufacturing industries and construction	0.52	0.36	-	-	0.88	257.3%
Transport	-	2.34	-	-	2.34	224.5%
<i>of which: road</i>	-	2.11	-	-	2.11	219.3%
Other	-	0.41	-	-	0.41	38.4%
<i>of which: residential</i>	-	0.36	-	-	0.36	180.8%
Reference Approach	0.52	4.50	0.02	-	5.03	130.1%
Diff. due to losses and/or transformation	-	0.06	-	-	0.06	
Statistical differences	-	- 0.10	-	-	- 0.10	
<i>Memo: international marine bunkers</i>	-	0.23	-	-	0.23	100.9%
<i>Memo: international aviation bunkers</i>	-	1.00	-	-	1.00	119.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	2.11	219.3%	11.4	11.4
Main activity prod. elec. and heat - oil	1.22	74.5%	6.6	18.0
Manufacturing industries - coal/peat	0.52	x	2.8	20.8
Residential - oil	0.36	180.8%	2.0	22.8
Manufacturing industries - oil	0.36	46.5%	1.9	24.7
Other transport - oil	0.23	281.1%	1.3	26.0
Unallocated autoproducers - oil	0.17	+	0.9	26.9
Non-specified other - oil	0.05	-70.6%	0.3	27.2
Other energy industries - oil	0.03	14.3%	0.1	27.3
Main activity prod. elec. and heat - gas	0.02	65.6%	0.1	27.4
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.07</i>	<i>152.1%</i>	<i>27.4</i>	<i>27.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Serbia

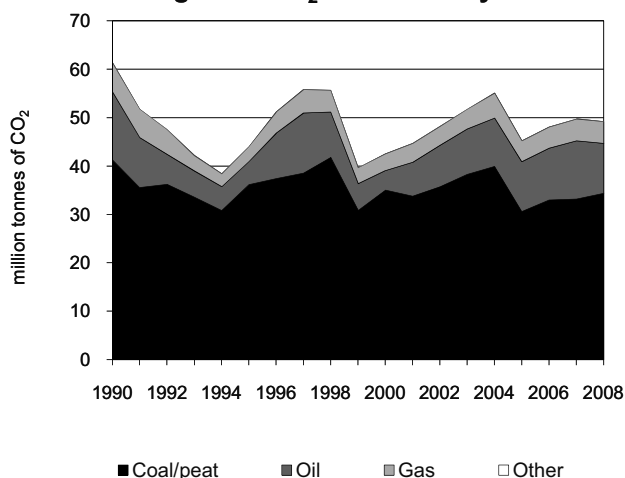
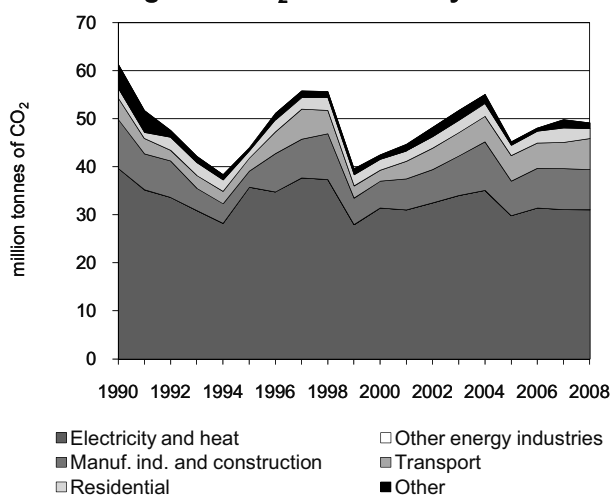
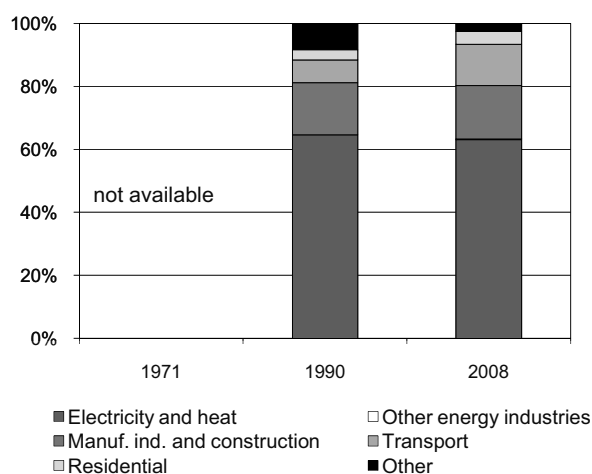
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

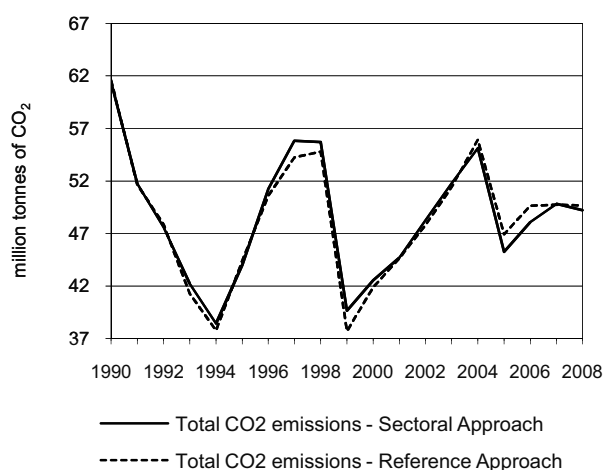


Figure 5. Electricity generation by fuel

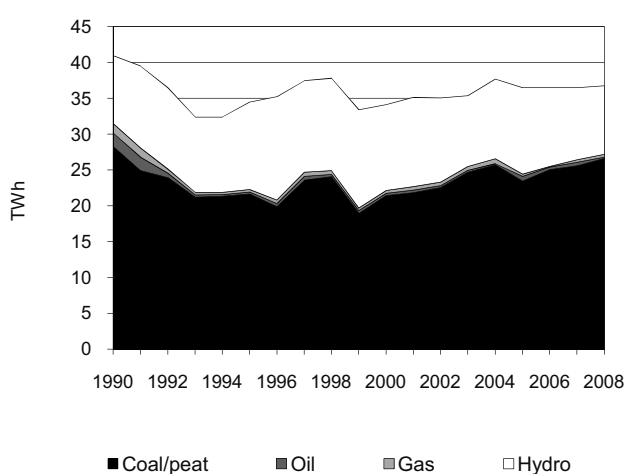
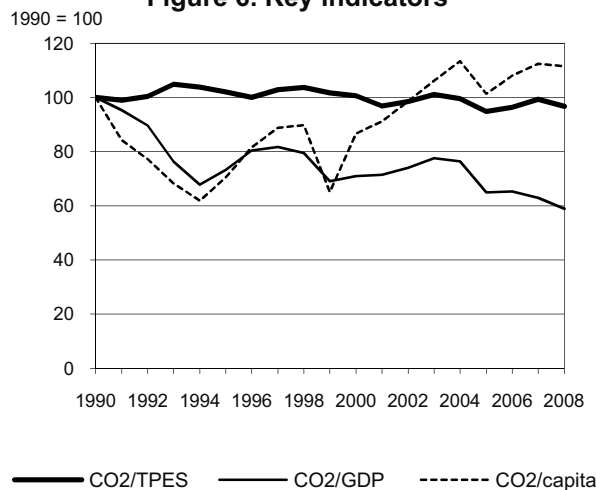


Figure 6. Key indicators



Serbia *

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	61.44	44.01	42.54	45.26	48.10	49.82	49.21	-19.9%
CO ₂ Reference Approach (Mt of CO ₂)	61.58	44.41	41.88	46.94	49.64	49.73	49.66	-19.4%
TPES (PJ)	810	569	557	629	658	662	671	-17.1%
TPES (Mtoe)	19.35	13.58	13.31	15.03	15.73	15.81	16.03	-17.1%
GDP (billion 2000 USD)	10.20	9.98	9.95	11.56	12.22	13.14	13.88	36.1%
GDP PPP (billion 2000 USD)	37.53	36.76	36.62	42.56	44.99	48.37	51.08	36.1%
Population (millions)	10.23	10.39	8.18	7.44	7.41	7.38	7.35	-28.2%
CO ₂ / TPES (t CO ₂ per TJ)	75.8	77.4	76.3	71.9	73.1	75.3	73.3	-3.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	6.03	4.41	4.28	3.92	3.94	3.79	3.55	-41.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.64	1.20	1.16	1.06	1.07	1.03	0.96	-41.2%
CO ₂ / population (t CO ₂ per capita)	6.01	4.24	5.20	6.08	6.49	6.75	6.70	11.5%

Ratios are based on the Sectoral Approach.

* Data for Serbia include Montenegro until 2004 and Kosovo until 1999.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 90-08
Sectoral Approach	34.38	10.32	4.50	0.00	49.21	-19.9%
Main activity producer elec. and heat	28.31	0.62	1.06	0.00	29.99	-24.5%
Unallocated autoproducers	0.29	0.65	0.12	0.00	1.06	x
Other energy industries	-	-	0.10	-	0.10	x
Manufacturing industries and construction	3.71	2.07	2.55	-	8.33	-18.3%
Transport	0.00	6.44	0.01	-	6.46	45.9%
<i>of which: road</i>	-	5.56	0.01	-	5.57	26.0%
Other	2.08	0.53	0.66	-	3.27	-54.0%
<i>of which: residential</i>	1.79	0.09	0.15	-	2.03	0.9%
Reference Approach	33.90	11.19	4.58	0.00	49.66	-19.4%
Diff. due to losses and/or transformation	0.77	0.90	0.07	-	1.74	
Statistical differences	- 1.25	- 0.03	0.00	-	- 1.29	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.14	-	-	0.14	-66.4%

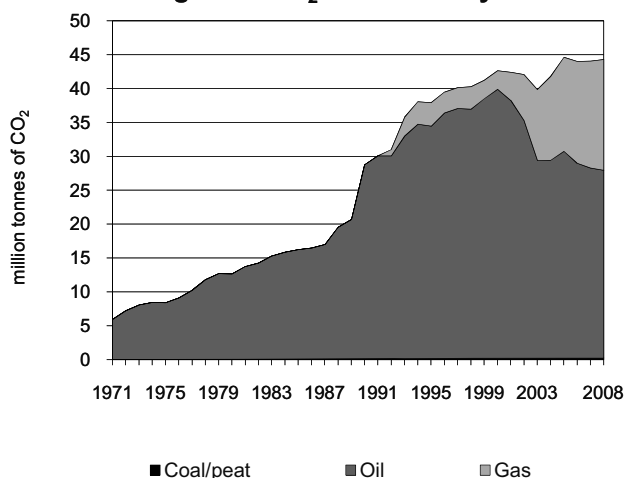
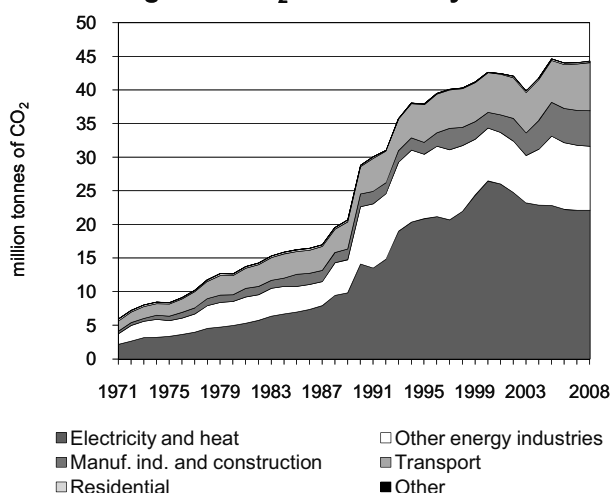
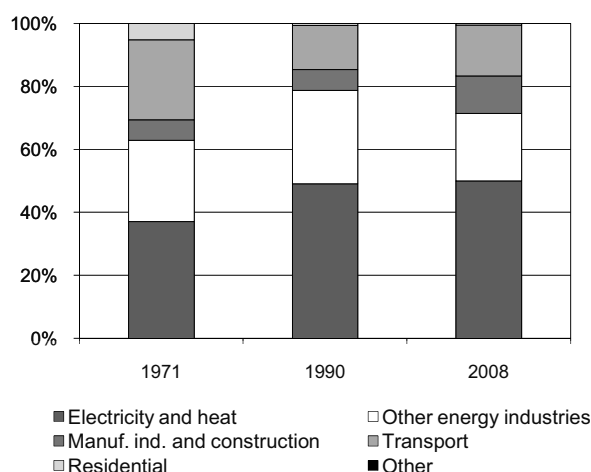
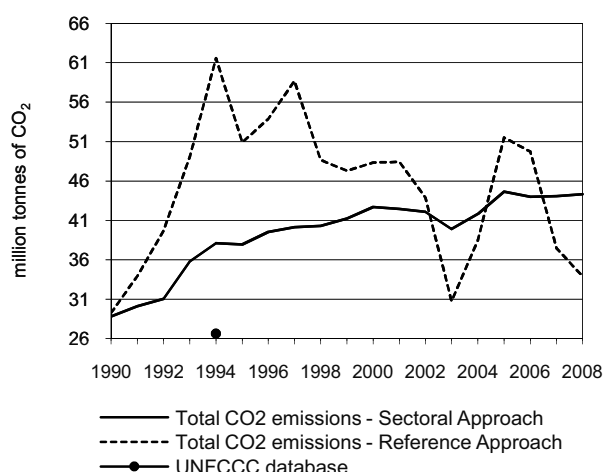
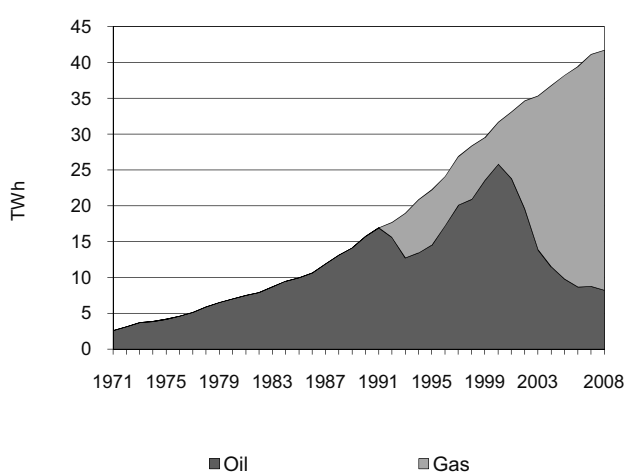
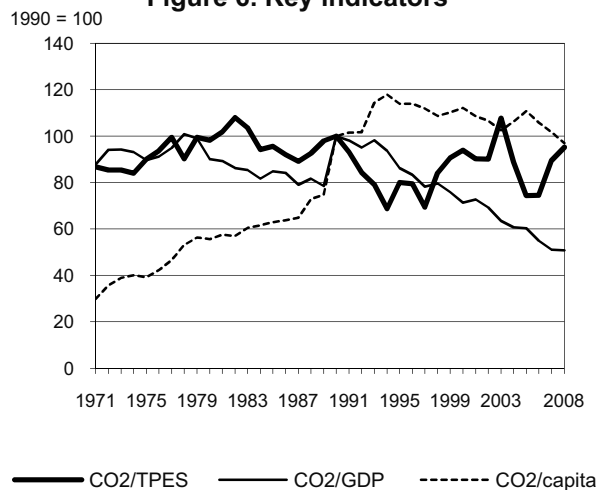
** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) ***	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	28.31	-24.5%	41.0	41.0
Road - oil	5.56	25.7%	8.1	49.1
Manufacturing industries - coal/peat	3.71	139.6%	5.4	54.5
Manufacturing industries - gas	2.55	40.0%	3.7	58.2
Manufacturing industries - oil	2.07	-69.6%	3.0	61.2
Residential - coal/peat	1.79	-3.8%	2.6	63.8
Main activity prod. elec. and heat - gas	1.06	100.2%	1.5	65.3
Other transport - oil	0.88	x	1.3	66.6
Unallocated autoproducers - oil	0.65	x	0.9	67.5
Main activity prod. elec. and heat - oil	0.62	-63.3%	0.9	68.4
Non-specified other - gas	0.51	-86.3%	0.7	69.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>49.21</i>	<i>-19.9%</i>	<i>71.3</i>	<i>71.3</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Singapore

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Singapore

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	28.79	37.93	42.68	44.64	44.02	44.09	44.31	53.9%
CO ₂ Reference Approach (Mt of CO ₂)	29.26	50.92	48.35	51.52	49.74	37.44	33.91	15.9%
TPES (PJ)	480	789	756	1 000	984	820	776	61.7%
TPES (Mtoe)	11.46	18.85	18.07	23.90	23.50	19.58	18.52	61.7%
GDP (billion 2000 USD)	44.66	68.23	92.72	114.69	124.27	133.92	135.46	203.3%
GDP PPP (billion 2000 USD)	45.66	69.76	94.79	117.26	127.05	136.92	138.49	203.3%
Population (millions)	3.05	3.53	4.03	4.27	4.40	4.59	4.84	58.8%
CO ₂ / TPES (t CO ₂ per TJ)	60.0	48.1	56.4	44.6	44.7	53.8	57.1	-4.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.64	0.56	0.46	0.39	0.35	0.33	0.33	-49.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.63	0.54	0.45	0.38	0.35	0.32	0.32	-49.3%
CO ₂ / population (t CO ₂ per capita)	9.45	10.76	10.60	10.46	10.00	9.61	9.16	-3.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.26	27.72	16.34	-	44.31	53.9%
Main activity producer elec. and heat	-	5.81	16.34	-	22.15	58.4%
Unallocated autoproducers	..	..	..	..	..	..
Other energy industries	-	9.50	-	-	9.50	11.4%
Manufacturing industries and construction	0.15	5.12	-	-	5.27	175.1%
Transport	-	7.18	-	-	7.18	78.3%
<i>of which: road</i>	-	7.18	-	-	7.18	78.3%
Other	0.11	0.10	-	-	0.21	14.6%
<i>of which: residential</i>	0.11	0.10	-	-	0.21	14.6%
Reference Approach	0.02	17.55	16.34	-	33.91	15.9%
Diff. due to losses and/or transformation	- 0.24	- 0.26	-	-	- 0.50	
Statistical differences	- 0.00	- 9.91	-	-	- 9.91	
<i>Memo: international marine bunkers</i>	-	93.24	-	-	93.24	175.3%
<i>Memo: international aviation bunkers</i>	-	21.63	-	-	21.63	284.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	16.34	x	32.0	32.0
Other energy industries - oil	9.50	11.4%	18.6	50.7
Road - oil	7.18	78.3%	14.1	64.7
Main activity prod. elec. and heat - oil	5.81	-58.4%	11.4	76.1
Manufacturing industries - oil	5.12	178.1%	10.0	86.2
Manufacturing industries - coal/peat	0.15	100.0%	0.3	86.5
Residential - coal/peat	0.11	59.5%	0.2	86.7
Residential - oil	0.10	-13.2%	0.2	86.9
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>44.31</i>	<i>53.9%</i>	<i>86.9</i>	<i>86.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Slovak Republic

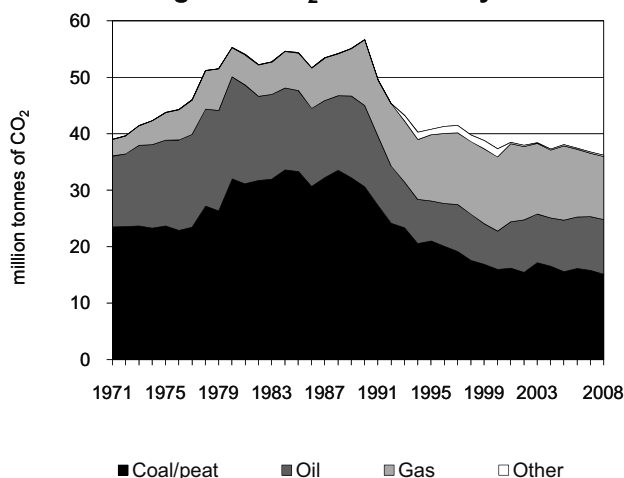
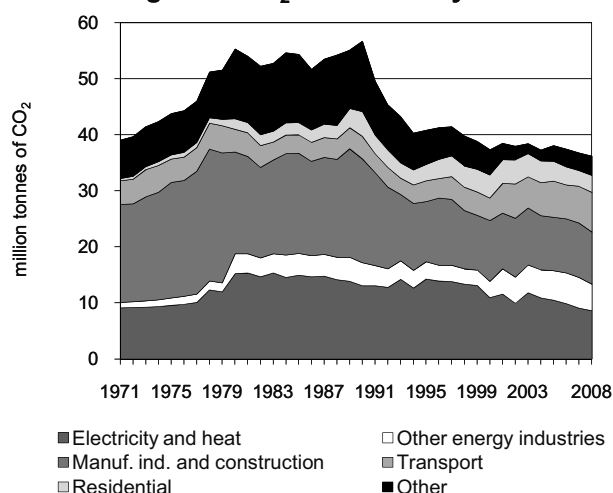
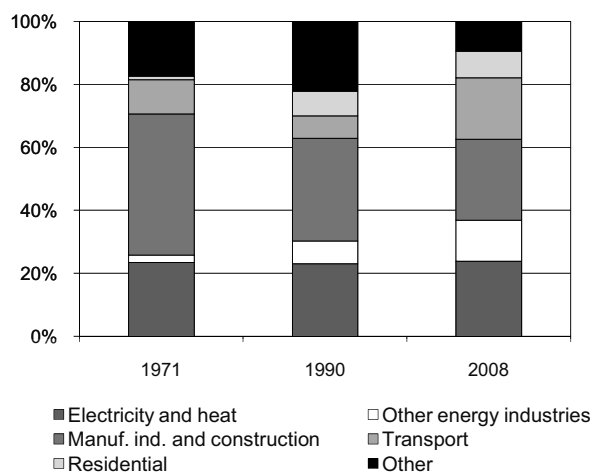
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

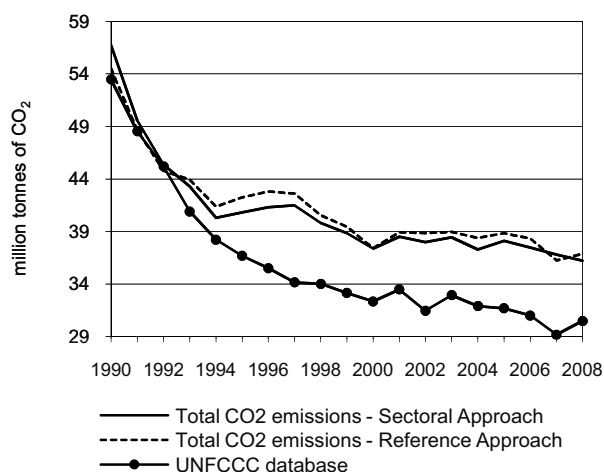


Figure 5. Electricity generation by fuel

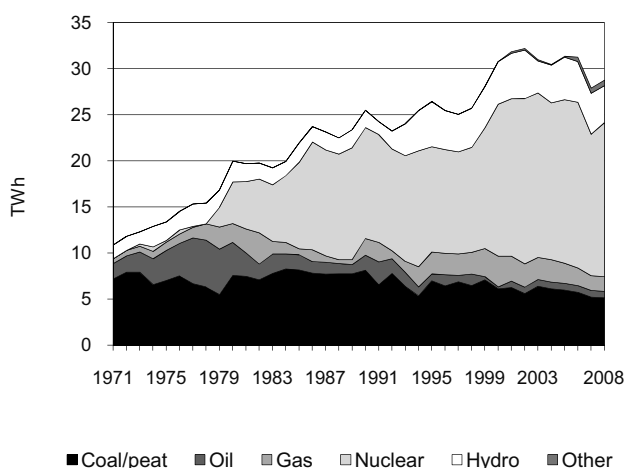
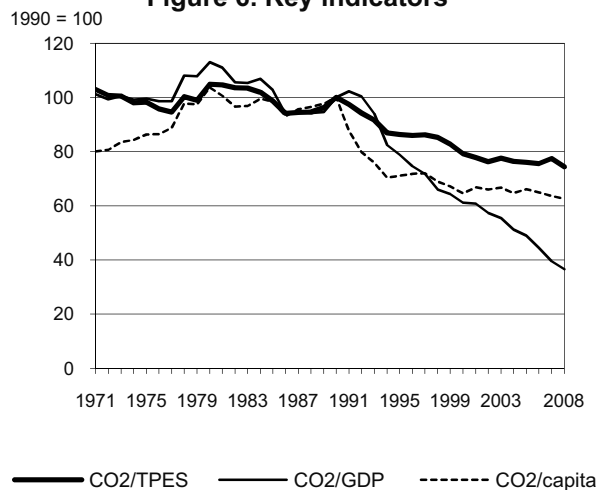


Figure 6. Key indicators



Slovak Republic

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	56.73	40.83	37.37	38.10	37.46	36.80	36.23	-36.1%
CO ₂ Reference Approach (Mt of CO ₂)	54.49	42.26	37.42	38.85	38.31	36.25	36.90	-32.3%
TPES (PJ)	893	744	743	788	780	747	766	-14.2%
TPES (Mtoe)	21.33	17.78	17.74	18.83	18.64	17.85	18.30	-14.2%
GDP (billion 2000 USD)	18.91	17.26	20.39	25.90	28.10	31.08	32.99	74.5%
GDP PPP (billion 2000 USD)	54.97	50.17	59.26	75.29	81.69	90.34	95.91	74.5%
Population (millions)	5.30	5.36	5.40	5.39	5.39	5.40	5.41	2.0%
CO ₂ / TPES (t CO ₂ per TJ)	63.5	54.9	50.3	48.3	48.0	49.2	47.3	-25.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	3.00	2.37	1.83	1.47	1.33	1.18	1.10	-63.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.03	0.81	0.63	0.51	0.46	0.41	0.38	-63.4%
CO ₂ / population (t CO ₂ per capita)	10.71	7.61	6.92	7.07	6.95	6.82	6.70	-37.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	15.13	9.69	11.19	0.22	36.23	-36.1%
Main activity producer elec. and heat	5.31	0.02	1.81	0.00	7.15	-34.2%
Unallocated autoproducers	0.88	0.32	0.19	0.10	1.49	-32.5%
Other energy industries	2.95	1.50	0.29	-	4.74	14.7%
Manufacturing industries and construction	4.84	1.71	2.67	0.09	9.31	-49.6%
Transport	-	5.78	1.28	-	7.05	74.3%
<i>of which: road</i>	-	5.77	-	-	5.77	42.7%
Other	1.16	0.35	4.95	0.02	6.48	-61.8%
<i>of which: residential</i>	0.26	0.05	2.76	-	3.07	-30.9%
Reference Approach	15.62	9.21	11.85	0.23	36.90	-32.3%
Diff. due to losses and/or transformation	0.18	-0.36	0.65	0.01	0.48	
Statistical differences	0.31	-0.12	0.00	0.00	0.19	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	5.77	42.7%	10.6	10.6
Main activity prod. elec. and heat - coal/peat	5.31	-34.9%	9.7	20.3
Manufacturing industries - coal/peat	4.84	-42.0%	8.9	29.2
Other energy industries - coal/peat	2.95	-13.7%	5.4	34.6
Residential - gas	2.76	8.4%	5.1	39.6
Manufacturing industries - gas	2.67	-14.4%	4.9	44.5
Non-specified other - gas	2.19	-37.1%	4.0	48.5
Main activity prod. elec. and heat - gas	1.81	-11.5%	3.3	51.9
Manufacturing industries - oil	1.71	-75.5%	3.1	55.0
Other energy industries - oil	1.50	234.0%	2.7	57.7
Other transport - gas	1.28	x	2.3	60.1
<i>Memo: total CO₂ from fuel combustion</i>	36.23	-36.1%	66.4	66.4

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Slovenia

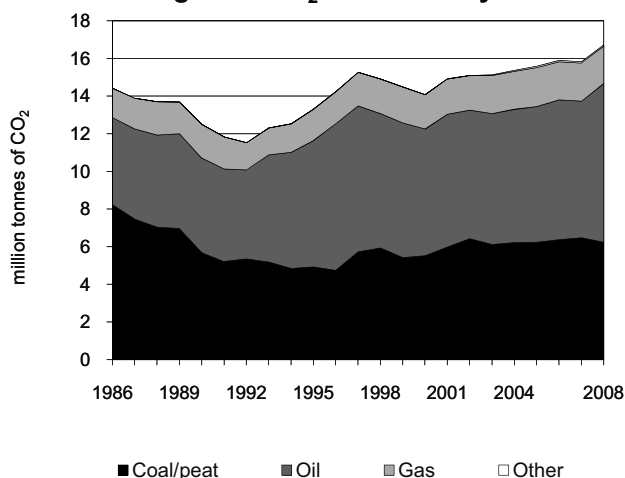
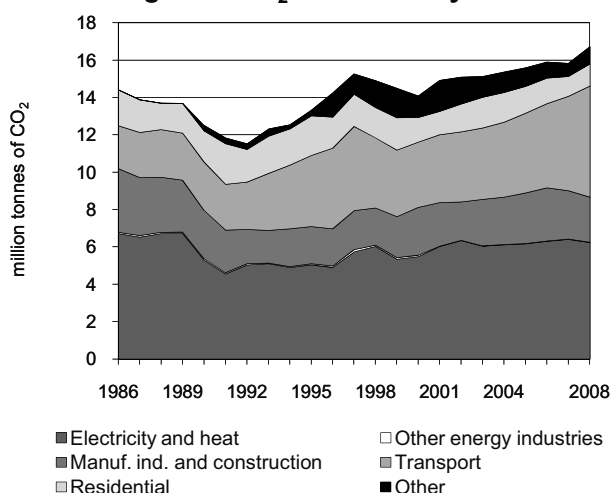
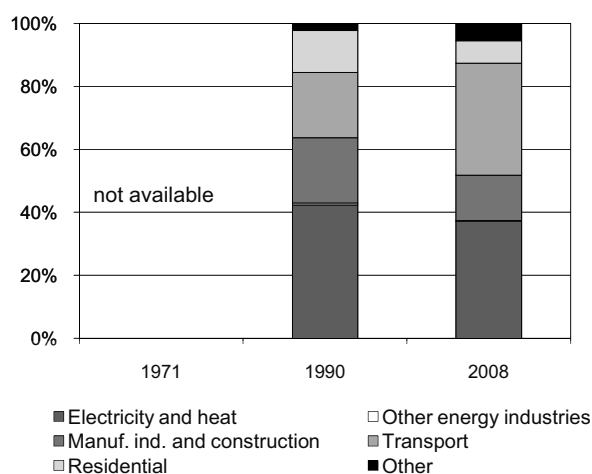
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

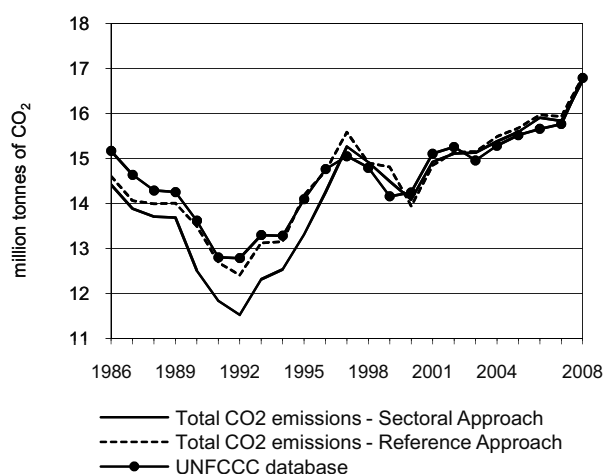


Figure 5. Electricity generation by fuel

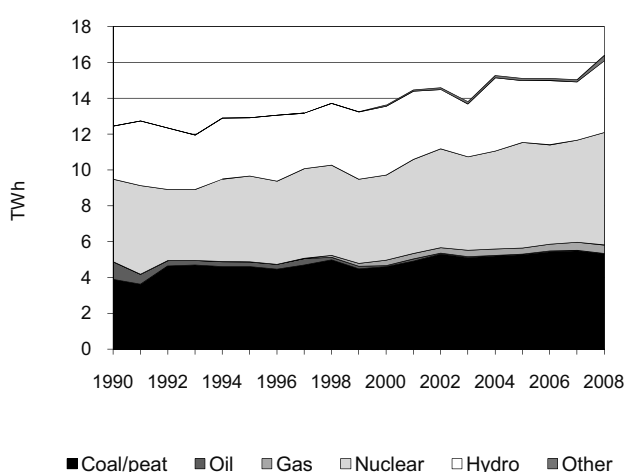
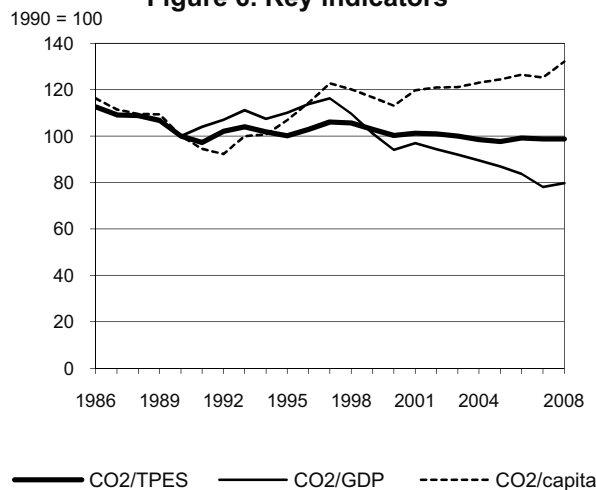


Figure 6. Key indicators



Slovenia *

Key indicators

	1986	1990	1995	2005	2006	2007	2008	% change 86-08
CO ₂ Sectoral Approach (Mt of CO ₂)	14.42e	12.50	13.31	15.59	15.90	15.83	16.73	16.0%
CO ₂ Reference Approach (Mt of CO ₂)	14.60e	13.49	14.19	15.68	15.97	15.93	16.81	15.1%
TPES (PJ)	245e	239	254	305	307	306	324	32.1%
TPES (Mtoe)	5.85e	5.71	6.07	7.29	7.32	7.32	7.74	32.1%
GDP (billion 2000 USD)	..	16.62	16.07	23.84	25.22	26.93	27.88	..
GDP PPP (billion 2000 USD)	..	28.82	28.08	41.65	44.07	47.06	48.71	..
Population (millions)	1.98e	2.00	1.99	2.00	2.01	2.02	2.02	2.1%
CO ₂ / TPES (t CO ₂ per TJ)	58.8e	52.3	52.4	51.1	51.9	51.7	51.6	-12.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	..	0.75	0.83	0.65	0.63	0.59	0.60	..
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	..	0.43	0.47	0.37	0.36	0.34	0.34	..
CO ₂ / population (t CO ₂ per capita)	7.28e	6.26	6.69	7.79	7.92	7.84	8.27	13.6%

Ratios are based on the Sectoral Approach.

* According to the provisions of Article 4.6 of the Convention and Decisions 9/CP.2 and 11/CP.4, Slovenia is allowed to use 1986 as the base year.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other **	Total	% change 86-08
Sectoral Approach	6.24	8.44	1.98	0.07	16.73	16.0%
Main activity producer elec. and heat	5.85	0.02	0.28	-	6.14	5.4%
Unallocated autoproducers	0.05	0.00	0.05	0.00	0.10	-88.7%
Other energy industries	-	-	0.01	-	0.01	-87.8%
Manufacturing industries and construction	0.35	0.63	1.38	0.06	2.42	-28.8%
Transport	-	5.94	-	-	5.94	158.2%
<i>of which: road</i>	-	5.90	-	-	5.90	160.3%
Other	-	1.85	0.27	-	2.11	9.5%
<i>of which: residential</i>	-	0.95	0.24	-	1.19	-38.1%
Reference Approach	6.32	8.44	1.98	0.07	16.81	15.1%
Diff. due to losses and/or transformation	-	-	-	-	-	
Statistical differences	0.08	0.00	0.00	-	0.08	
<i>Memo: international marine bunkers</i>	-	0.21	-	-	0.21	x
<i>Memo: international aviation bunkers</i>	-	0.10	-	-	0.10	6.2%

** Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 86-08	Level assessment (%) ***	Cumulative total (%)
Road - oil	5.90	..	27.8	27.8
Main activity prod. elec. and heat - coal/peat	5.85	..	27.5	55.3
Manufacturing industries - gas	1.38	..	6.5	61.8
Residential - oil	0.95	..	4.5	66.3
Non-specified other - oil	0.90	..	4.2	70.5
Manufacturing industries - oil	0.63	..	3.0	73.5
Manufacturing industries - coal/peat	0.35	..	1.6	75.2
Main activity prod. elec. and heat - gas	0.28	..	1.3	76.5
Residential - gas	0.24	..	1.1	77.6
Manufacturing industries -other	0.06	..	0.3	77.9
Unallocated autoproducers - gas	0.05	..	0.2	78.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>16.73</i>	<i>16.0%</i>	<i>78.8</i>	<i>78.8</i>

*** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

South Africa

Figure 1. CO₂ emissions by fuel

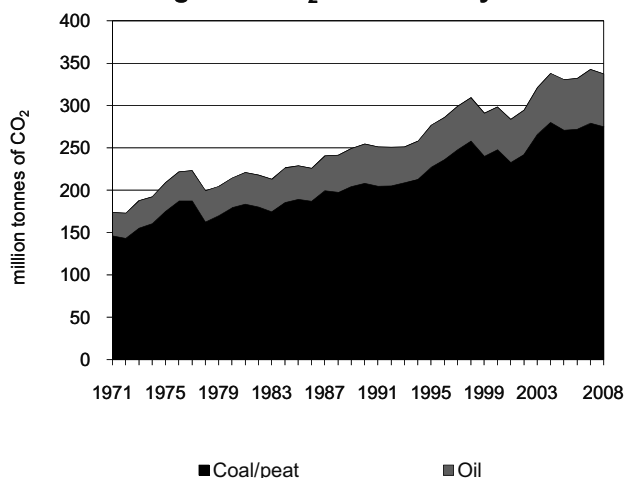


Figure 2. CO₂ emissions by sector

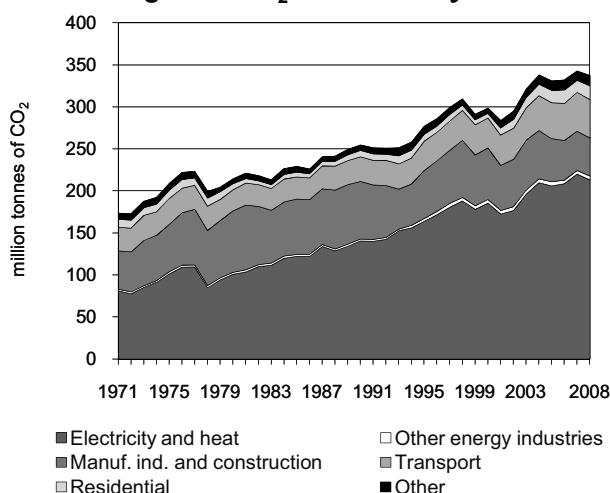


Figure 3. CO₂ emissions by sector

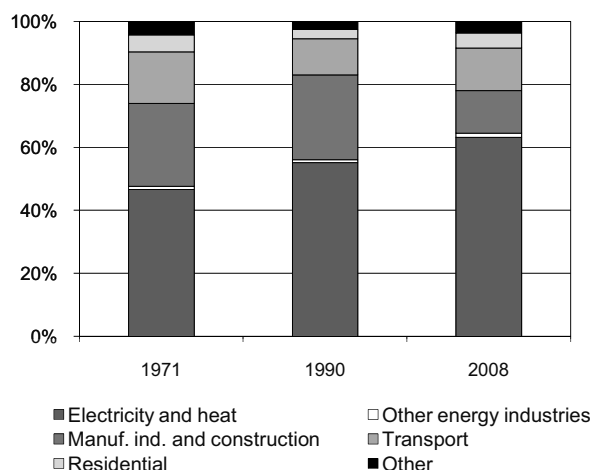


Figure 4. Reference vs Sectoral Approach

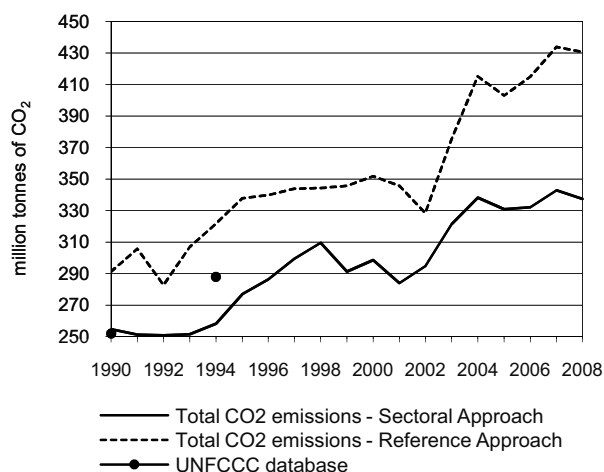


Figure 5. Electricity generation by fuel

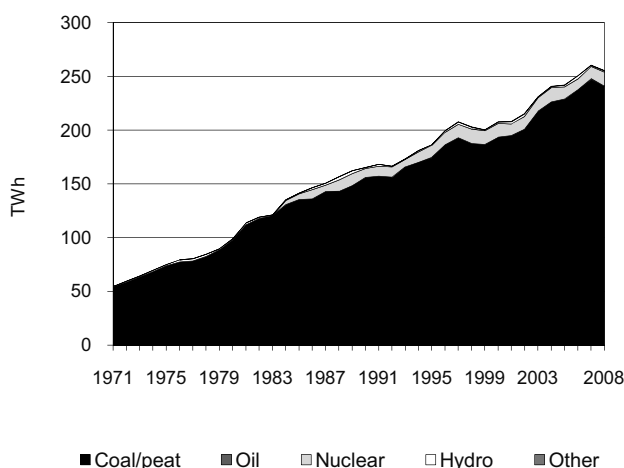
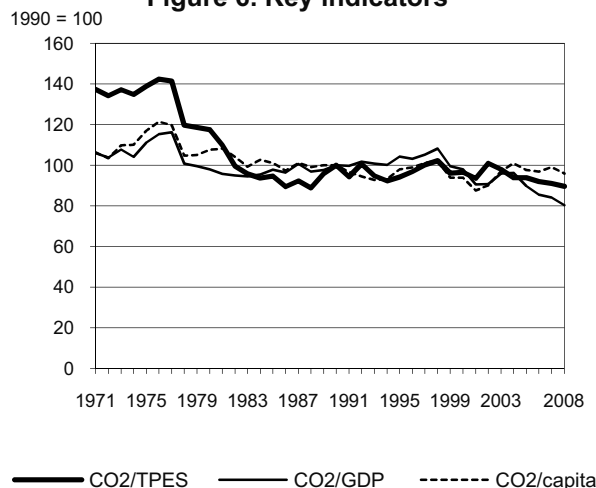


Figure 6. Key indicators



South Africa

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	254.67	276.91	298.50	330.90	332.11	342.75	337.42	32.5%
CO ₂ Reference Approach (Mt of CO ₂)	291.15	337.80	351.73	402.93	415.00	433.75	430.59	47.9%
TPES (PJ)	3 804	4 394	4 619	5 271	5 394	5 624	5 631	48.0%
TPES (Mtoe)	90.86	104.94	110.33	125.88	128.83	134.33	134.49	48.0%
GDP (billion 2000 USD)	110.95	115.81	132.88	160.63	169.18	177.80	183.25	65.2%
GDP PPP (billion 2000 USD)	321.98	336.11	385.64	466.18	490.99	516.02	531.82	65.2%
Population (millions)	35.20	39.12	44.00	46.89	47.39	47.85	48.69	38.3%
CO ₂ / TPES (t CO ₂ per TJ)	67.0	63.0	64.6	62.8	61.6	60.9	59.9	-10.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.30	2.39	2.25	2.06	1.96	1.93	1.84	-19.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.79	0.82	0.77	0.71	0.68	0.66	0.63	-19.8%
CO ₂ / population (t CO ₂ per capita)	7.24	7.08	6.78	7.06	7.01	7.16	6.93	-4.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	275.13	62.29	-	-	337.42	32.5%
Main activity producer elec. and heat	203.31	0.11	-	-	203.41	54.1%
Unallocated autoproducers	9.93	-	-	-	9.93	16.0%
Other energy industries	-	4.39	-	-	4.39	87.5%
Manufacturing industries and construction	41.03	4.41	-	-	45.44	-33.6%
Transport	-	45.81	-	-	45.81	56.6%
<i>of which: road</i>	-	42.30	-	-	42.30	51.5%
Other	20.87	7.57	-	-	28.44	101.5%
<i>of which: residential</i>	13.83	2.34	-	-	16.16	113.5%
Reference Approach	371.67	49.20	9.73	-	430.59	47.9%
Diff. due to losses and/or transformation	85.63	- 17.81	9.73	-	77.55	
Statistical differences	10.90	4.72	0.00	-	15.63	
<i>Memo: international marine bunkers</i>	-	8.74	-	-	8.74	46.8%
<i>Memo: international aviation bunkers</i>	-	2.60	-	-	2.60	137.4%

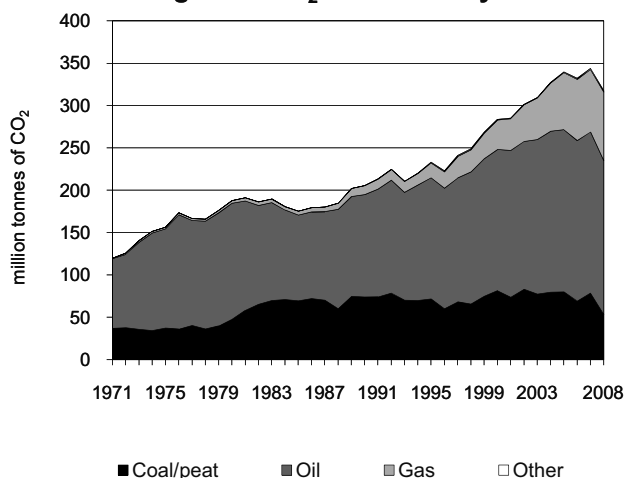
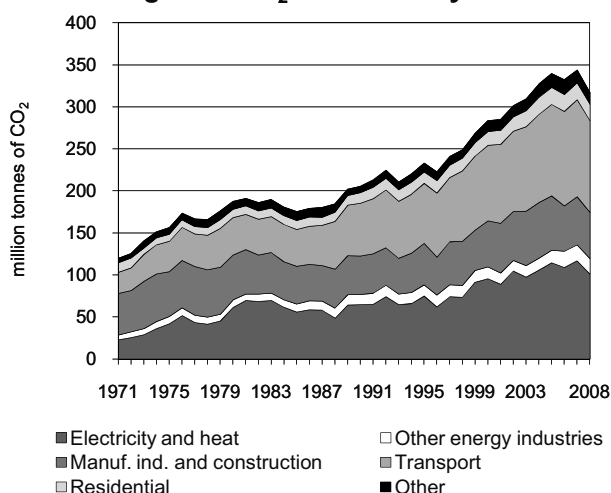
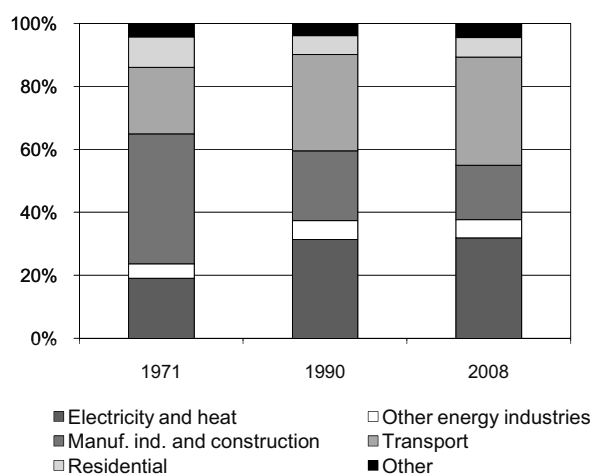
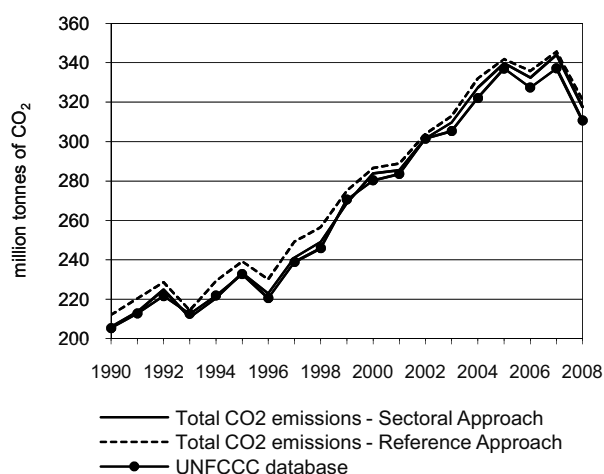
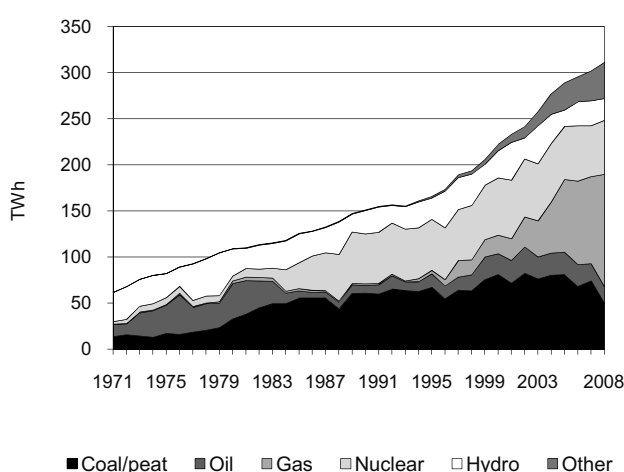
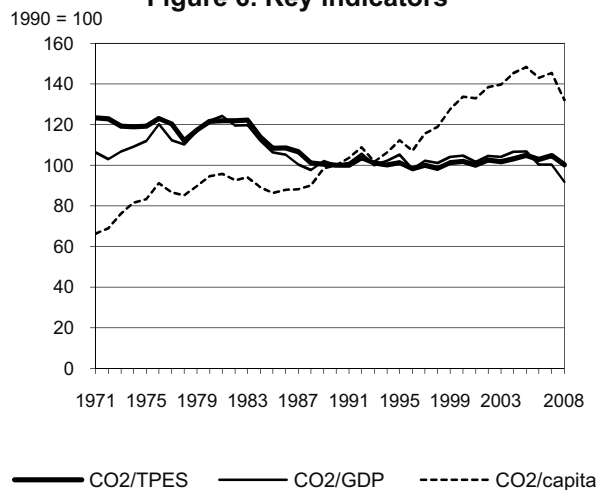
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	203.31	54.0%	44.2	44.2
Road - oil	42.30	51.5%	9.2	53.4
Manufacturing industries - coal/peat	41.03	-29.3%	8.9	62.3
Residential - coal/peat	13.83	140.1%	3.0	65.3
Unallocated autoproducers - coal/peat	9.93	16.0%	2.2	67.4
Non-specified other sectors - coal/peat	7.04	91.7%	1.5	69.0
Non-specified other - oil	5.24	82.6%	1.1	70.1
Manufacturing industries - oil	4.41	-57.4%	1.0	71.1
Other energy industries - oil	4.39	90.3%	1.0	72.0
Other transport - oil	3.50	209.0%	0.8	72.8
Residential - oil	2.34	28.7%	0.5	73.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>337.42</i>	<i>32.5%</i>	<i>73.3</i>	<i>73.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Spain

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Spain

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	205.81	233.28	283.87	339.71	332.37	344.07	317.63	54.3%
CO ₂ Reference Approach (Mt of CO ₂)	212.09	239.18	286.67	341.91	335.85	345.81	321.22	51.5%
TPES (PJ)	3 772	4 221	5 106	5 938	5 923	6 024	5 811	54.1%
TPES (Mtoe)	90.09	100.82	121.95	141.83	141.48	143.87	138.79	54.1%
GDP (billion 2000 USD)	440.64	474.85	580.67	681.88	709.28	734.55	740.85	68.1%
GDP PPP (billion 2000 USD)	651.50	702.08	858.54	1 008.17	1 048.69	1 086.05	1 095.37	68.1%
Population (millions)	39.01	39.39	40.26	43.40	44.07	44.87	45.59	16.9%
CO ₂ / TPES (t CO ₂ per TJ)	54.6	55.3	55.6	57.2	56.1	57.1	54.7	0.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.47	0.49	0.49	0.50	0.47	0.47	0.43	-8.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.32	0.33	0.33	0.34	0.32	0.32	0.29	-8.2%
CO ₂ / population (t CO ₂ per capita)	5.28	5.92	7.05	7.83	7.54	7.67	6.97	32.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	53.35	181.81	80.97	1.49	317.63	54.3%
Main activity producer elec. and heat	44.68	10.98	33.10	0.56	89.33	42.8%
Unallocated autoproducers	0.36	1.95	8.83	0.93	12.06	498.5%
Other energy industries	1.94	12.44	3.88	-	18.26	46.9%
Manufacturing industries and construction	5.35	27.30	22.49	-	55.14	21.3%
Transport	-	108.92	0.15	-	109.07	73.3%
<i>of which: road</i>	-	95.23	-	-	95.23	80.5%
Other	1.02	20.22	12.52	-	33.76	65.7%
<i>of which: residential</i>	0.83	10.17	8.45	-	19.44	55.7%
Reference Approach	52.08	186.40	81.24	1.49	321.22	51.5%
Diff. due to losses and/or transformation	0.29	2.63	0.31	-	3.23	
Statistical differences	- 1.56	1.96	- 0.04	-	0.36	
<i>Memo: international marine bunkers</i>	-	27.69	-	-	27.69	141.7%
<i>Memo: international aviation bunkers</i>	-	10.11	-	-	10.11	204.3%

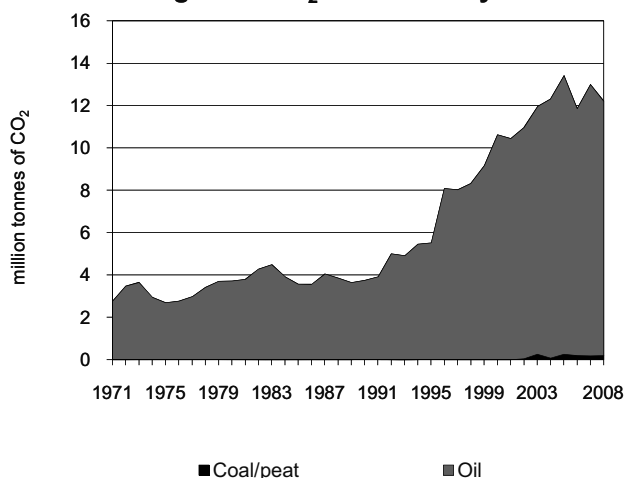
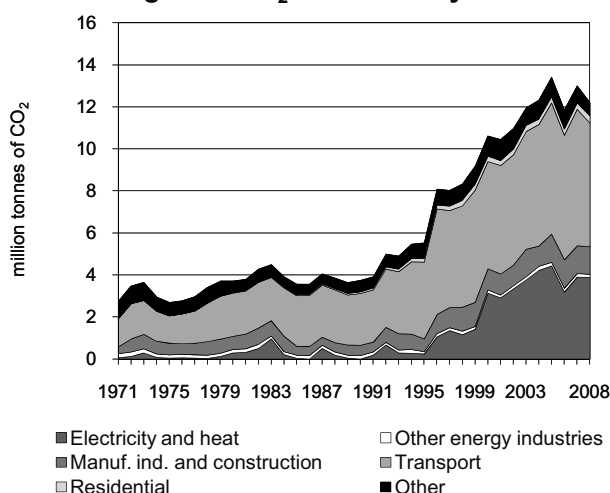
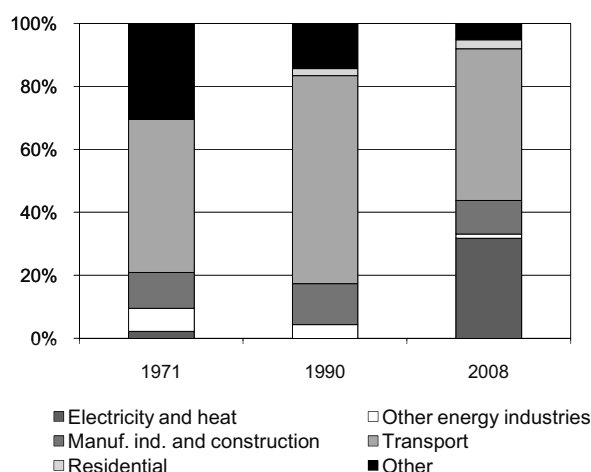
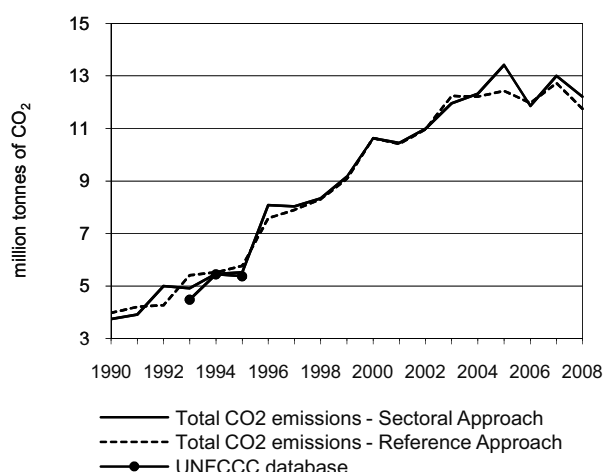
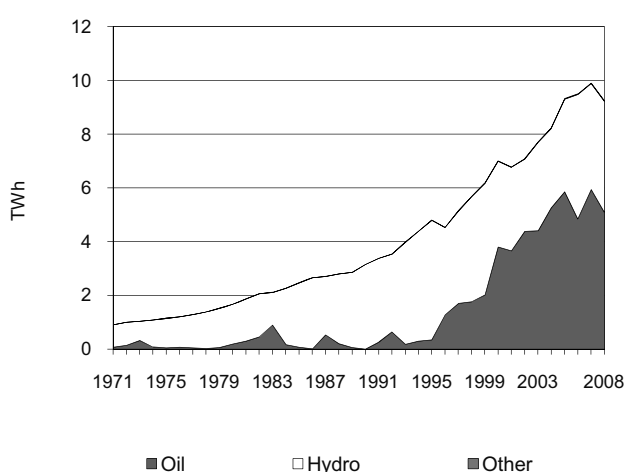
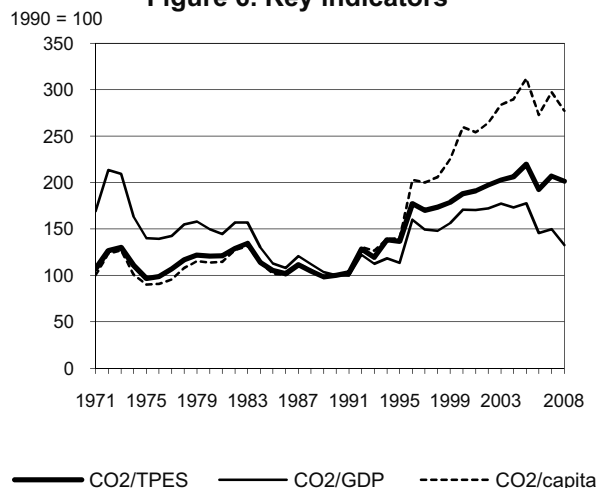
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	95.23	80.5%	23.1	23.1
Main activity prod. elec. and heat - coal/peat	44.68	-20.4%	10.8	33.9
Main activity prod. elec. and heat - gas	33.10	+	8.0	41.9
Manufacturing industries - oil	27.30	17.4%	6.6	48.5
Manufacturing industries - gas	22.49	163.8%	5.4	54.0
Other transport - oil	13.69	34.4%	3.3	57.3
Other energy industries - oil	12.44	18.0%	3.0	60.3
Main activity prod. elec. and heat - oil	10.98	83.7%	2.7	63.0
Residential - oil	10.17	2.4%	2.5	65.4
Non-specified other - oil	10.05	36.9%	2.4	67.9
Unallocated autoproducers - gas	8.83	+	2.1	70.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>317.63</i>	<i>54.3%</i>	<i>77.0</i>	<i>77.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Sri Lanka

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Sri Lanka

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3.74	5.52	10.62	13.42	11.86	13.00	12.22	226.3%
CO ₂ Reference Approach (Mt of CO ₂)	3.98	5.77	10.63	12.44	11.97	12.73	11.75	195.4%
TPES (PJ)	231	249	349	377	380	388	374	62.0%
TPES (Mtoe)	5.52	5.95	8.33	9.00	9.08	9.26	8.93	62.0%
GDP (billion 2000 USD)	9.82	12.77	16.33	19.84	21.36	22.81	24.17	146.1%
GDP PPP (billion 2000 USD)	40.09	52.14	66.65	80.97	87.18	93.11	98.65	146.1%
Population (millions)	17.11	18.08	18.71	19.67	19.89	20.01	20.16	17.8%
CO ₂ / TPES (t CO ₂ per TJ)	16.2	22.2	30.5	35.6	31.2	33.5	32.7	101.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.38	0.43	0.65	0.68	0.56	0.57	0.51	32.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.09	0.11	0.16	0.17	0.14	0.14	0.12	32.5%
CO ₂ / population (t CO ₂ per capita)	0.22	0.31	0.57	0.68	0.60	0.65	0.61	177.1%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.20	12.02	-	-	12.22	226.3%
Main activity producer elec. and heat	-	3.89	-	-	3.89	+
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	0.16	-	-	0.16	-0.7%
Manufacturing industries and construction	0.20	1.11	-	-	1.30	167.3%
Transport	-	5.89	-	-	5.89	138.4%
<i>of which: road</i>	-	5.21	-	-	5.21	136.8%
Other	-	0.98	-	-	0.98	57.8%
<i>of which: residential</i>	-	0.34	-	-	0.34	315.5%
Reference Approach	0.20	11.55	-	-	11.75	195.4%
Diff. due to losses and/or transformation	-	0.10	-	-	0.10	
Statistical differences	-	- 0.57	-	-	- 0.57	
<i>Memo: international marine bunkers</i>	-	0.63	-	-	0.63	-48.1%
<i>Memo: international aviation bunkers</i>	-	0.30	-	-	0.30	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	5.21	136.8%	19.9	19.9
Main activity prod. elec. and heat - oil	3.89	+	14.8	34.7
Manufacturing industries - oil	1.11	135.8%	4.2	38.9
Other transport - oil	0.68	151.8%	2.6	41.4
Non-specified other - oil	0.64	18.3%	2.4	43.9
Residential - oil	0.34	315.5%	1.3	45.2
Manufacturing industries - coal/peat	0.20	938.0%	0.8	45.9
Other energy industries - oil	0.16	-0.7%	0.6	46.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>12.22</i>	<i>226.3%</i>	<i>46.5</i>	<i>46.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Sudan

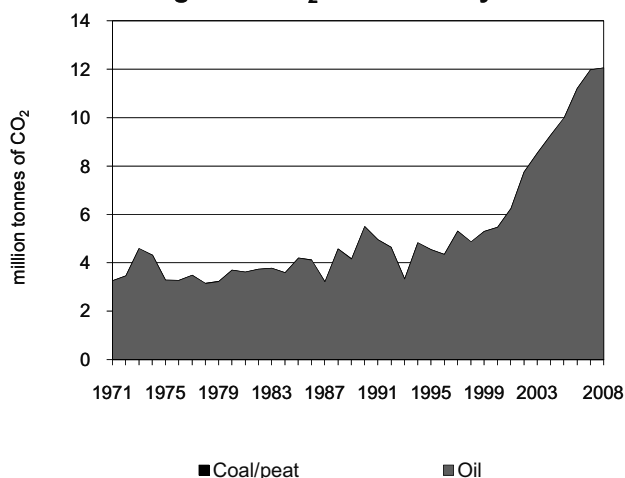
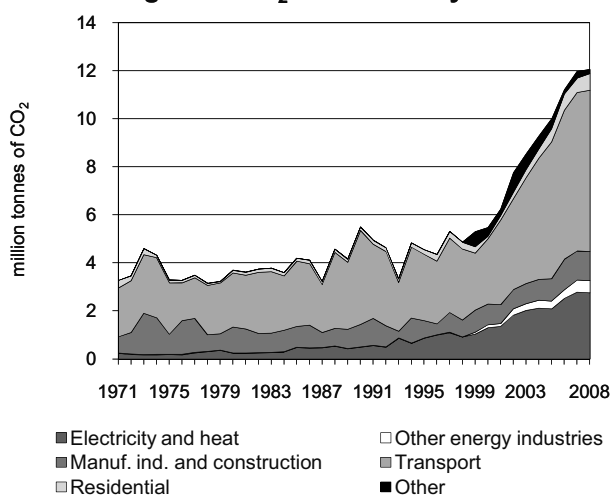
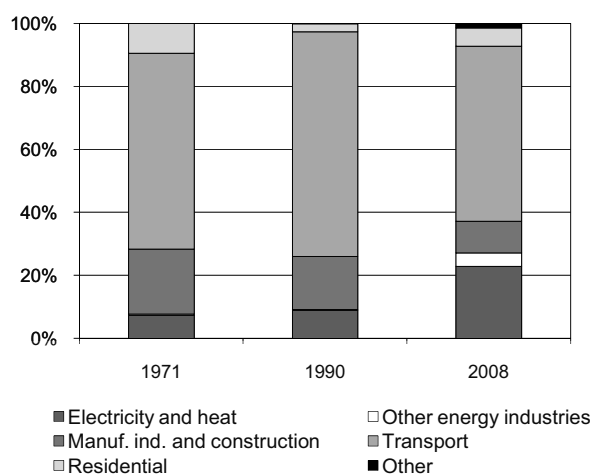
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

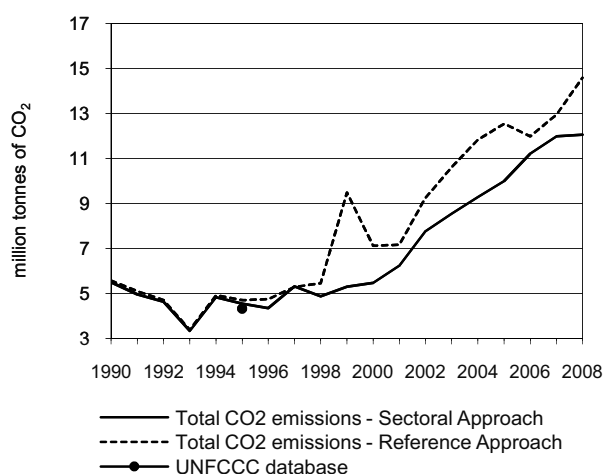


Figure 5. Electricity generation by fuel

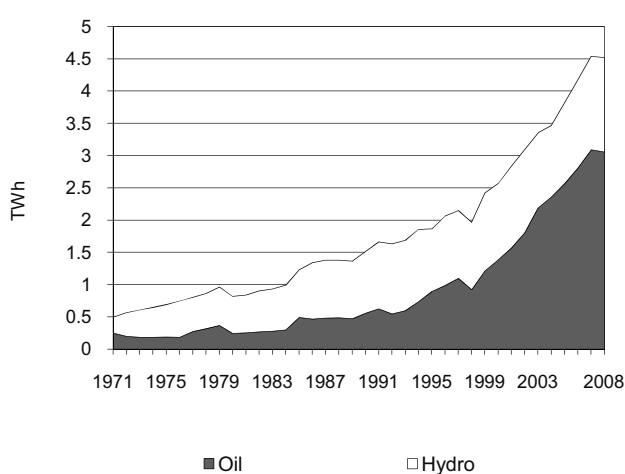
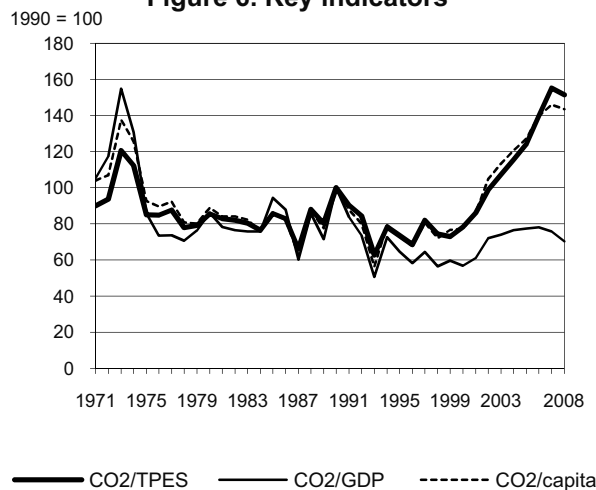


Figure 6. Key indicators



Sudan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	5.50	4.56	5.48	10.00	11.21	11.98	12.06	119.1%
CO ₂ Reference Approach (Mt of CO ₂)	5.58	4.71	7.13	12.54	11.99	12.95	14.59	161.8%
TPES (PJ)	445	502	566	651	649	625	644	44.6%
TPES (Mtoe)	10.63	11.98	13.53	15.55	15.49	14.92	15.37	44.6%
GDP (billion 2000 USD)	7.06	9.06	12.37	16.56	18.43	20.31	22.00	211.6%
GDP PPP (billion 2000 USD)	28.31	36.31	49.57	66.39	73.89	81.40	88.19	211.6%
Population (millions)	27.09	30.84	34.90	38.70	39.55	40.43	41.35	52.6%
CO ₂ / TPES (t CO ₂ per TJ)	12.4	9.1	9.7	15.4	17.3	19.2	18.7	51.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.78	0.50	0.44	0.60	0.61	0.59	0.55	-29.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.19	0.13	0.11	0.15	0.15	0.15	0.14	-29.7%
CO ₂ / population (t CO ₂ per capita)	0.20	0.15	0.16	0.26	0.28	0.30	0.29	43.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	12.06	-	-	12.06	119.1%
Main activity producer elec. and heat	-	2.75	-	-	2.75	459.2%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	0.51	-	-	0.51	+
Manufacturing industries and construction	-	1.21	-	-	1.21	30.4%
Transport	-	6.71	-	-	6.71	71.2%
<i>of which: road</i>	-	6.68	-	-	6.68	70.2%
Other	-	0.87	-	-	0.87	487.7%
<i>of which: residential</i>	-	0.69	-	-	0.69	389.5%
Reference Approach	-	14.59	-	-	14.59	161.8%
Diff. due to losses and/or transformation	-	0.60	-	-	0.60	
Statistical differences	-	1.93	-	-	1.93	
<i>Memo: international marine bunkers</i>	-	0.03	-	-	0.03	14.3%
<i>Memo: international aviation bunkers</i>	-	1.03	-	-	1.03	985.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	6.68	70.2%	4.8	4.8
Main activity prod. elec. and heat - oil	2.75	459.2%	2.0	6.8
Manufacturing industries - oil	1.21	30.4%	0.9	7.7
Residential - oil	0.69	389.5%	0.5	8.2
Other energy industries - oil	0.51	+	0.4	8.5
Non-specified other - oil	0.17	+	0.1	8.6
Other transport - oil	0.04	x	0.0	8.7
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>12.06</i>	<i>119.1%</i>	<i>8.7</i>	<i>8.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Sweden

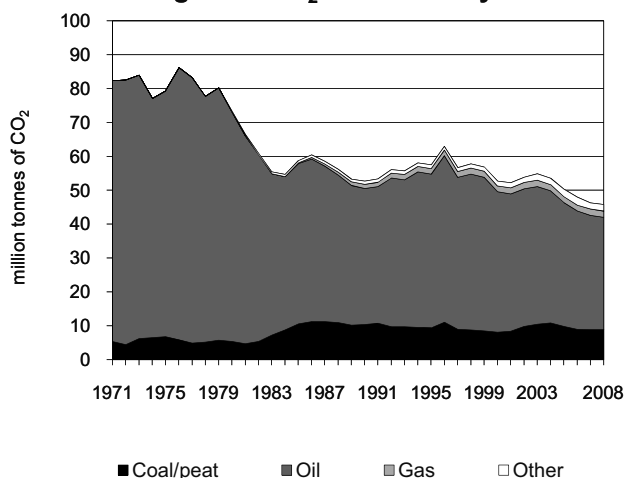
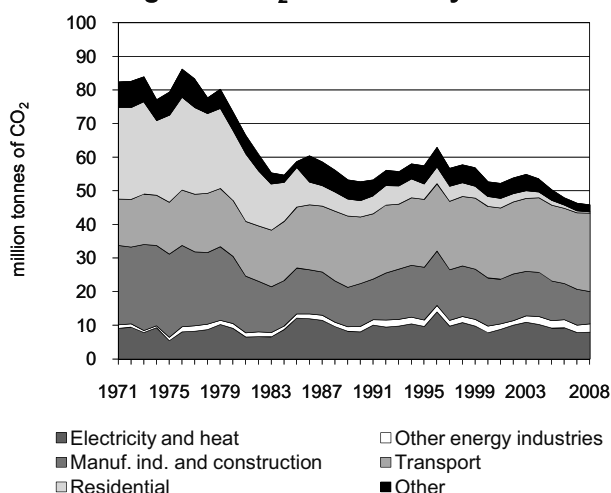
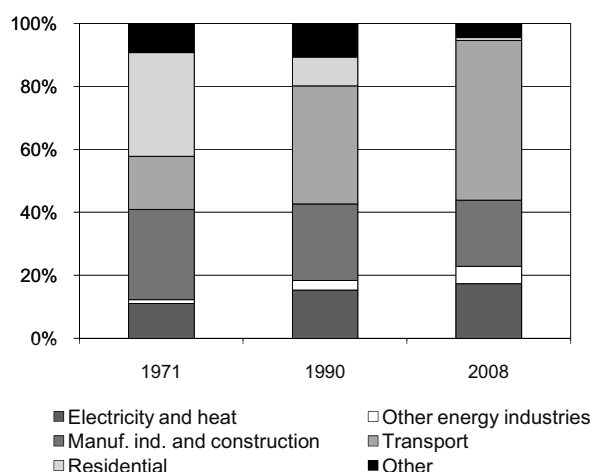
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

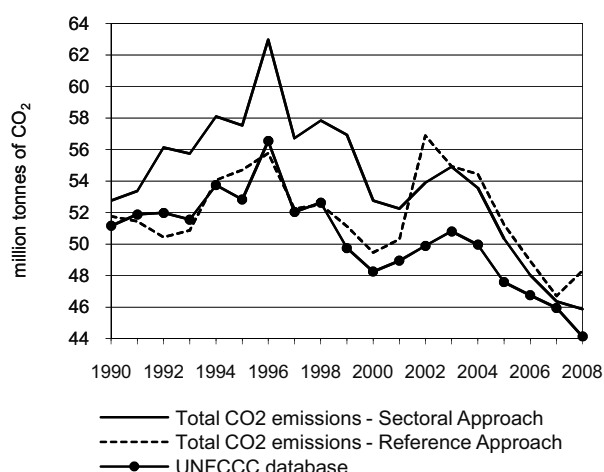


Figure 5. Electricity generation by fuel

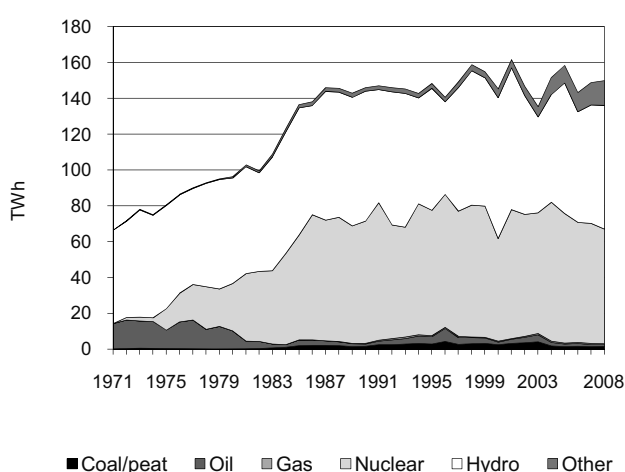
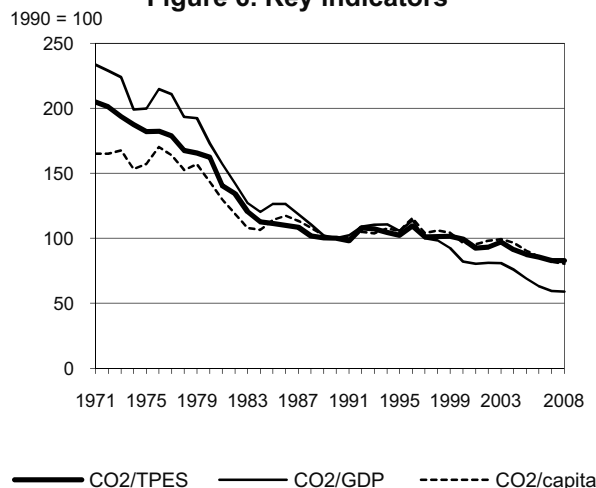


Figure 6. Key indicators



* The difference in trend between the Reference and Sectoral Approaches in 2008 is due to varying statistical differences for coal and oil in previous years.

Sweden

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	52.75	57.52	52.76	50.34	48.03	46.35	45.87	-13.0%
CO ₂ Reference Approach (Mt of CO ₂)	51.76	54.71	49.46	51.22	48.92	46.71	48.31	-6.7%
TPES (PJ)	1 976	2 107	1 991	2 158	2 101	2 095	2 076	5.1%
TPES (Mtoe)	47.20	50.33	47.56	51.54	50.18	50.03	49.59	5.1%
GDP (billion 2000 USD)	201.52	208.38	245.57	278.60	290.43	297.82	297.17	47.5%
GDP PPP (billion 2000 USD)	202.11	209.00	246.30	279.42	291.29	298.70	298.05	47.5%
Population (millions)	8.56	8.83	8.87	9.03	9.08	9.15	9.26	8.1%
CO ₂ / TPES (t CO ₂ per TJ)	26.7	27.3	26.5	23.3	22.9	22.1	22.1	-17.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.26	0.28	0.21	0.18	0.17	0.16	0.15	-41.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.26	0.28	0.21	0.18	0.16	0.16	0.15	-41.0%
CO ₂ / population (t CO ₂ per capita)	6.16	6.52	5.95	5.58	5.29	5.07	4.96	-19.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	8.91	33.18	1.81	1.97	45.87	-13.0%
Main activity producer elec. and heat	4.16	0.50	0.49	1.96	7.12	-8.4%
Unallocated autoproducers	0.64	0.17	0.01	0.01	0.84	159.0%
Other energy industries	0.29	2.23	0.00	-	2.52	55.1%
Manufacturing industries and construction	3.78	5.00	0.87	-	9.64	-24.6%
Transport	-	23.20	0.06	-	23.26	17.7%
<i>of which: road</i>	-	21.97	0.06	-	22.02	23.6%
Other	0.04	2.07	0.38	-	2.49	-76.2%
<i>of which: residential</i>	0.02	0.30	0.10	-	0.42	-91.4%
Reference Approach	9.49	34.92	1.93	1.97	48.31	-6.7%
Diff. due to losses and/or transformation	1.99	2.15	0.01	-	4.15	
Statistical differences	- 1.41	- 0.41	0.11	-	- 1.71	
<i>Memo: international marine bunkers</i>	-	6.43	-	-	6.43	207.5%
<i>Memo: international aviation bunkers</i>	-	2.32	-	-	2.32	115.6%

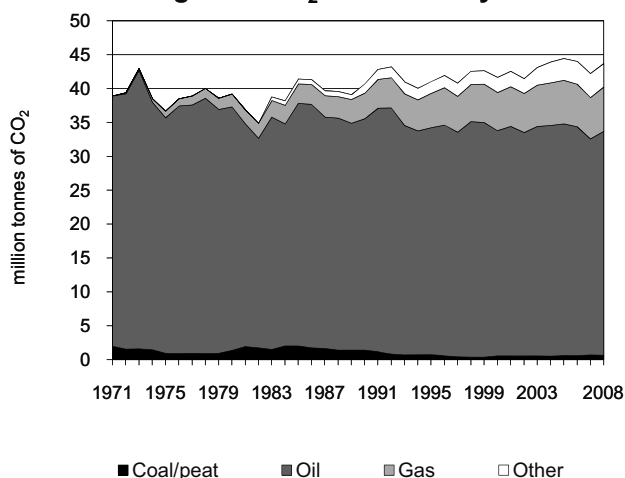
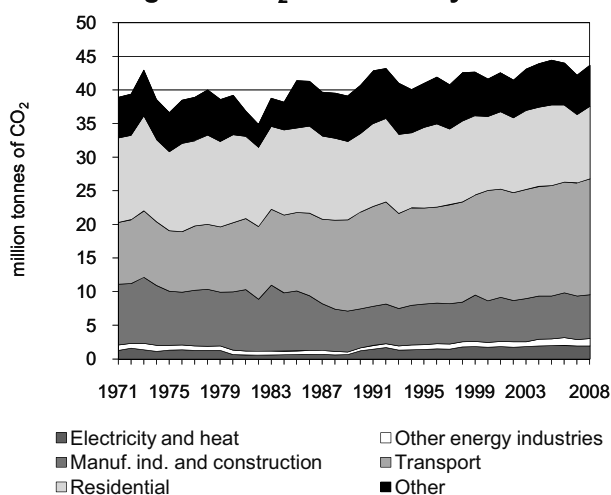
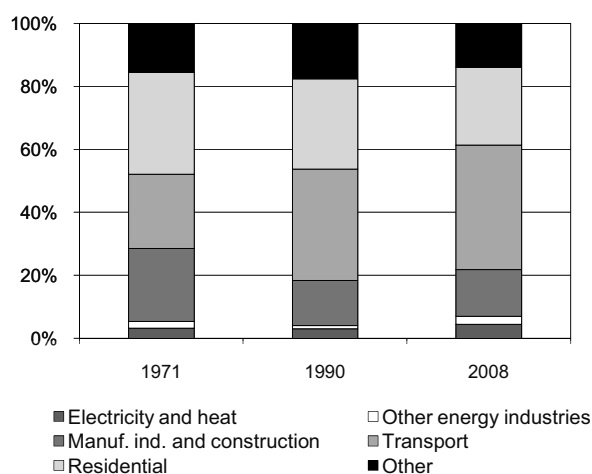
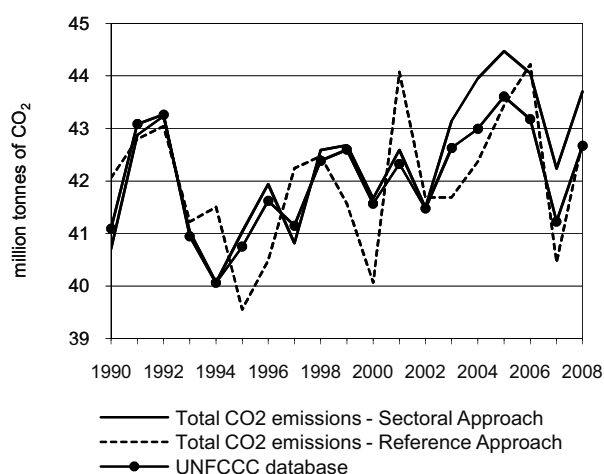
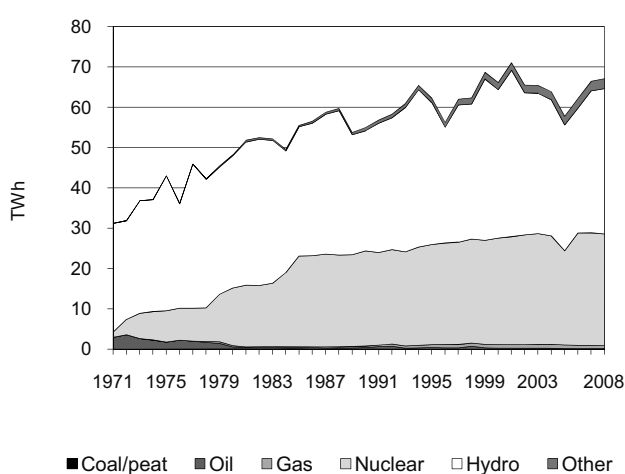
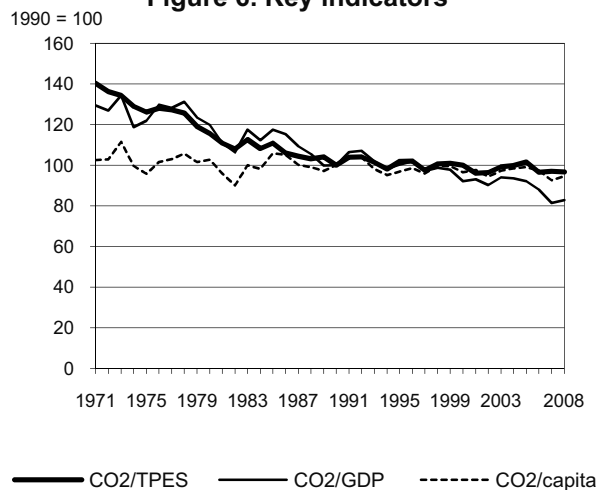
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	21.97	23.3%	33.4	33.4
Manufacturing industries - oil	5.00	-33.9%	7.6	41.0
Main activity prod. elec. and heat - coal/peat	4.16	-20.5%	6.3	47.4
Manufacturing industries - coal/peat	3.78	-18.1%	5.8	53.1
Other energy industries - oil	2.23	68.2%	3.4	56.5
Main activity prod. elec. and heat - other	1.96	106.0%	3.0	59.5
Non-specified other - oil	1.78	-66.6%	2.7	62.2
Other transport - oil	1.24	-36.7%	1.9	64.1
Manufacturing industries - gas	0.87	46.9%	1.3	65.4
Unallocated autoproducers - coal/peat	0.64	+	1.0	66.4
Main activity prod. elec. and heat - oil	0.50	-55.7%	0.8	67.2
<i>Memo: total CO₂ from fuel combustion</i>	<i>45.87</i>	<i>-13.0%</i>	<i>69.8</i>	<i>69.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Switzerland

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Switzerland

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	40.71	41.03	41.66	44.47	44.05	42.24	43.70	7.4%
CO ₂ Reference Approach (Mt of CO ₂)	42.06	39.56	40.07	43.44	44.22	40.45	42.75	1.7%
TPES (PJ)	1 006	997	1 031	1 082	1 129	1 077	1 118	11.1%
TPES (Mtoe)	24.04	23.81	24.63	25.85	26.97	25.72	26.70	11.1%
GDP (billion 2000 USD)	224.77	225.89	249.91	266.69	276.37	286.34	291.43	29.7%
GDP PPP (billion 2000 USD)	205.03	206.05	227.96	243.27	252.10	261.19	265.84	29.7%
Population (millions)	6.80	7.08	7.21	7.50	7.56	7.62	7.71	13.4%
CO ₂ / TPES (t CO ₂ per TJ)	40.4	41.2	40.4	41.1	39.0	39.2	39.1	-3.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.18	0.18	0.17	0.17	0.16	0.15	0.15	-17.2%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.20	0.20	0.18	0.18	0.17	0.16	0.16	-17.2%
CO ₂ / population (t CO ₂ per capita)	5.99	5.80	5.78	5.93	5.83	5.54	5.67	-5.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.65	33.08	6.51	3.46	43.70	7.4%
Main activity producer elec. and heat	-	0.02	0.33	-	0.36	-18.6%
Unallocated autoproducers	-	0.06	0.18	1.38	1.62	97.7%
Other energy industries	-	1.09	-	-	1.09	167.8%
Manufacturing industries and construction	0.61	2.58	2.15	1.16	6.51	11.9%
Transport	-	17.23	0.02	-	17.25	19.8%
<i>of which: road</i>	-	16.95	0.02	-	16.97	22.3%
Other	0.04	12.10	3.83	0.91	16.89	-10.3%
<i>of which: residential</i>	0.04	8.39	2.37	-	10.81	-7.5%
Reference Approach	0.64	32.09	6.56	3.46	42.75	1.7%
Diff. due to losses and/or transformation	- 0.00	0.34	0.05	-	0.38	
Statistical differences	0.00	- 1.33	0.00	-	- 1.33	
<i>Memo: international marine bunkers</i>	-	0.03	-	-	0.03	-44.4%
<i>Memo: international aviation bunkers</i>	-	4.14	-	-	4.14	38.0%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	16.95	22.2%	31.2	31.2
Residential - oil	8.39	-17.8%	15.5	46.7
Non-specified other - oil	3.71	-40.5%	6.8	53.5
Manufacturing industries - oil	2.58	1.5%	4.8	58.3
Residential - gas	2.37	67.5%	4.4	62.7
Manufacturing industries - gas	2.15	56.9%	4.0	66.6
Non-specified other - gas	1.46	82.7%	2.7	69.3
Unallocated autoproducers - other	1.38	107.4%	2.5	71.9
Manufacturing industries - other	1.16	66.2%	2.1	74.0
Other energy industries - oil	1.09	167.8%	2.0	76.0
Non-specified other - other	0.91	x	1.7	77.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>43.70</i>	<i>7.4%</i>	<i>80.5</i>	<i>80.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Syrian Arab Republic

Figure 1. CO₂ emissions by fuel

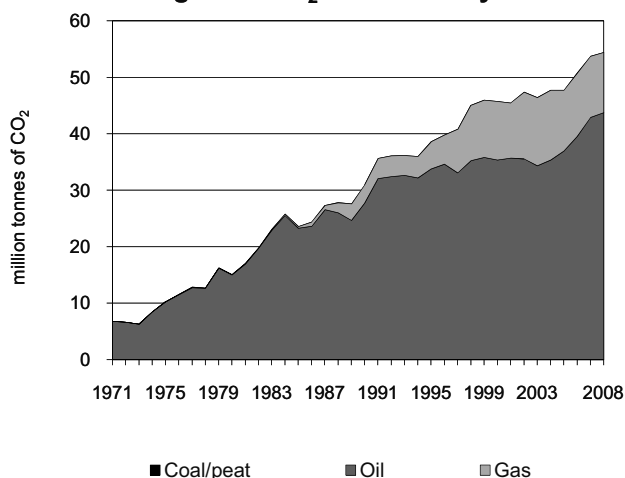


Figure 2. CO₂ emissions by sector

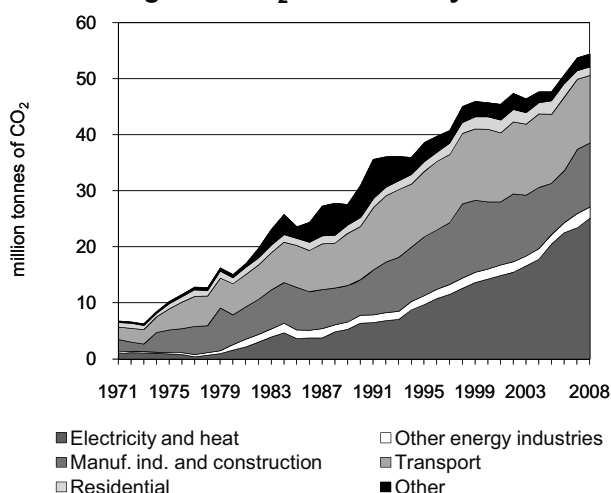


Figure 3. CO₂ emissions by sector

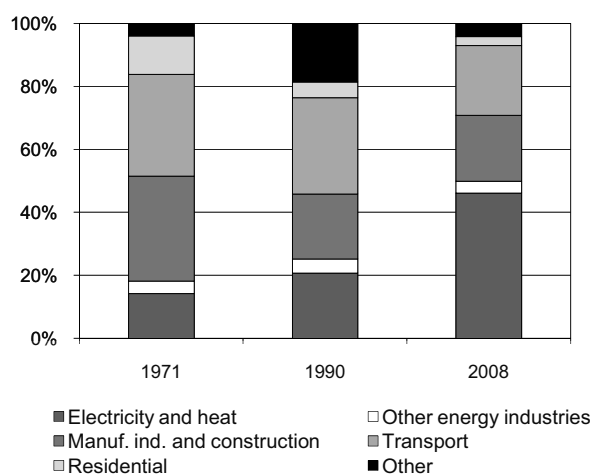


Figure 4. Reference vs Sectoral Approach

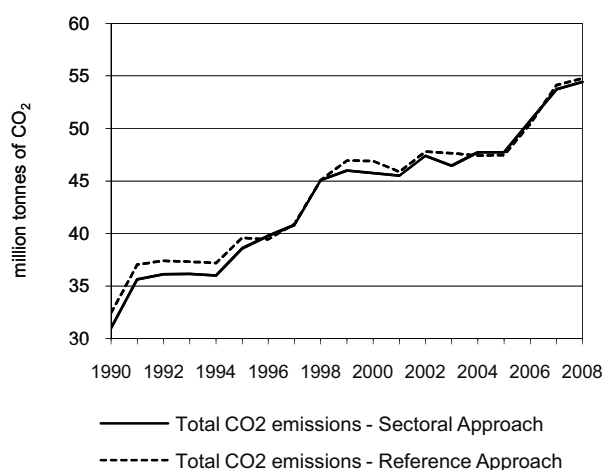


Figure 5. Electricity generation by fuel

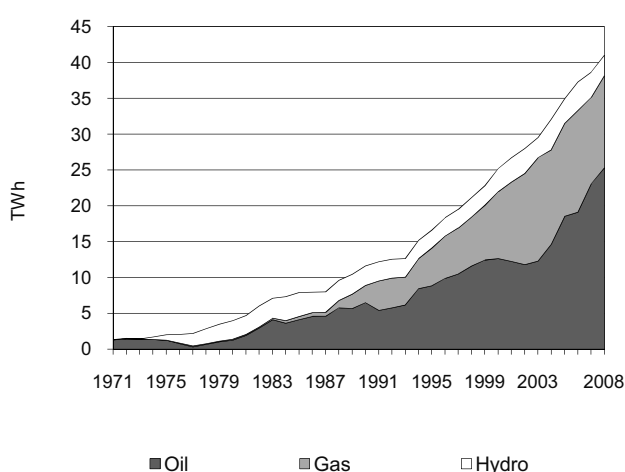
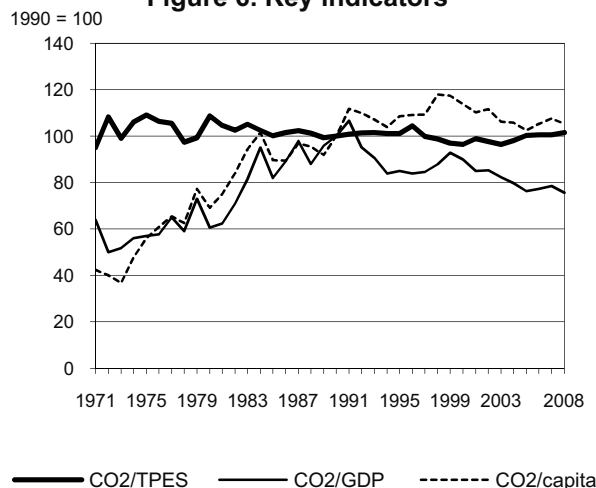


Figure 6. Key indicators



Syrian Arab Republic

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	30.98	38.61	45.76	47.73	50.75	53.73	54.44	75.7%
CO ₂ Reference Approach (Mt of CO ₂)	32.44	39.60	46.92	47.47	50.45	54.12	54.76	68.8%
TPES (PJ)	477	588	730	733	777	822	825	73.1%
TPES (Mtoe)	11.38	14.03	17.43	17.50	18.56	19.64	19.70	73.1%
GDP (billion 2000 USD)	11.77	17.26	19.33	23.76	24.97	26.02	27.37	132.5%
GDP PPP (billion 2000 USD)	32.38	47.48	53.17	65.36	68.69	71.58	75.30	132.5%
Population (millions)	12.72	14.61	16.51	19.12	19.79	20.50	21.23	66.9%
CO ₂ / TPES (t CO ₂ per TJ)	65.0	65.7	62.7	65.1	65.3	65.3	66.0	1.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.63	2.24	2.37	2.01	2.03	2.07	1.99	-24.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.96	0.81	0.86	0.73	0.74	0.75	0.72	-24.4%
CO ₂ / population (t CO ₂ per capita)	2.44	2.64	2.77	2.50	2.56	2.62	2.56	5.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.01	43.78	10.66	-	54.44	75.7%
Main activity producer elec. and heat	-	17.08	6.98	-	24.06	339.8%
Unallocated autoproducers	-	1.08	-	-	1.08	13.0%
Other energy industries	-	1.67	0.34	-	2.02	46.0%
Manufacturing industries and construction	0.01	8.51	2.88	-	11.39	78.5%
Transport	-	12.06	-	-	12.06	27.3%
<i>of which: road</i>	-	11.66	-	-	11.66	23.1%
Other	-	3.38	0.46	-	3.83	-47.6%
<i>of which: residential</i>	-	1.56	-	-	1.56	-0.2%
Reference Approach	0.01	44.09	10.66	-	54.76	68.8%
Diff. due to losses and/or transformation	0.01	0.31	-	-	0.31	
Statistical differences	-	0.00	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.20	-	-	0.20	-77.5%

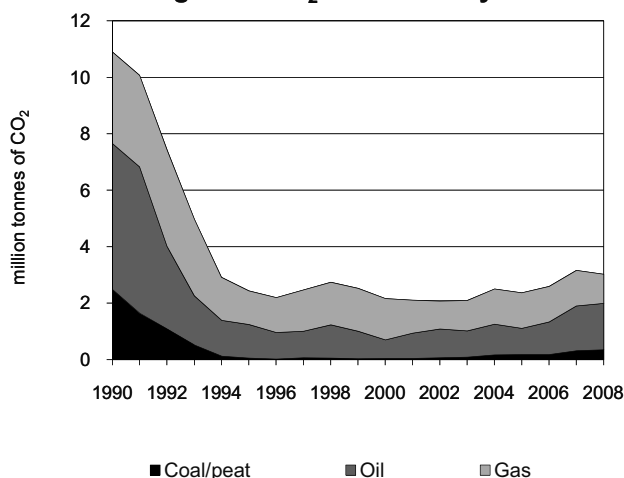
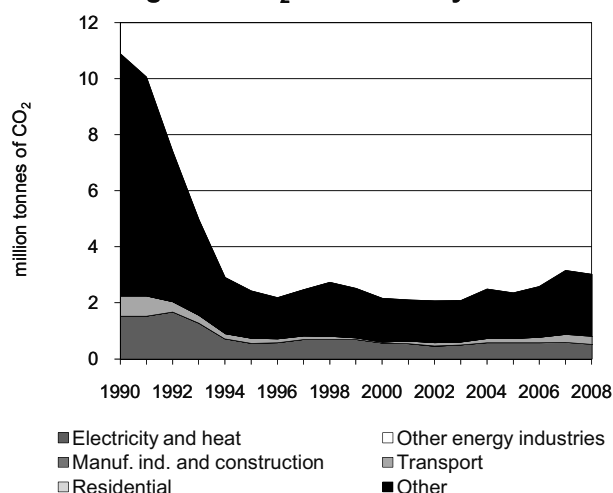
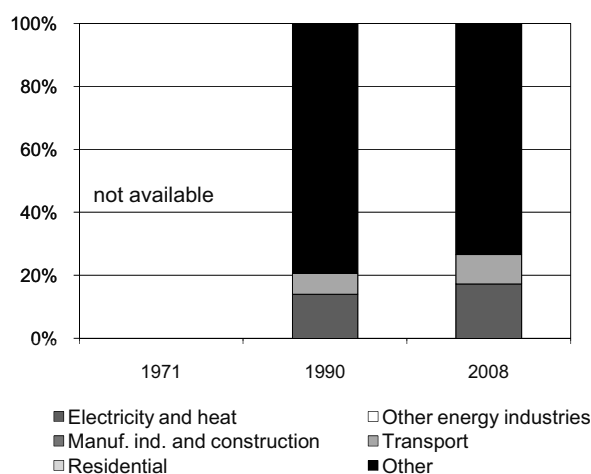
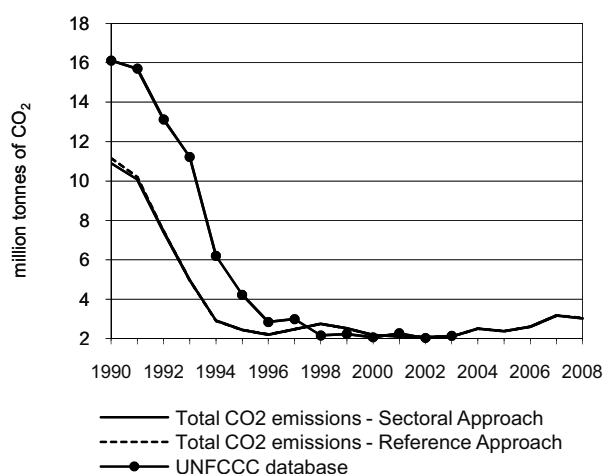
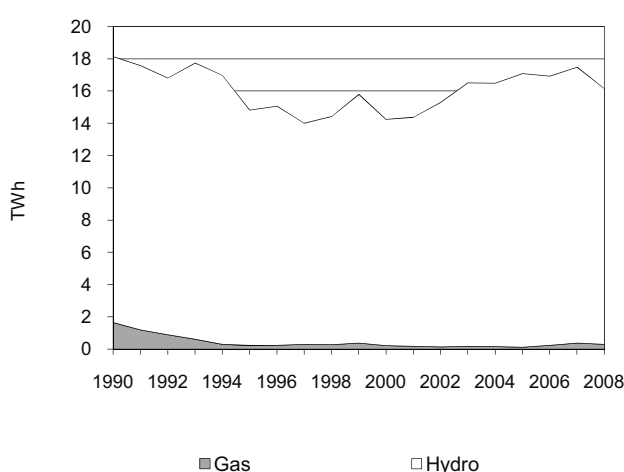
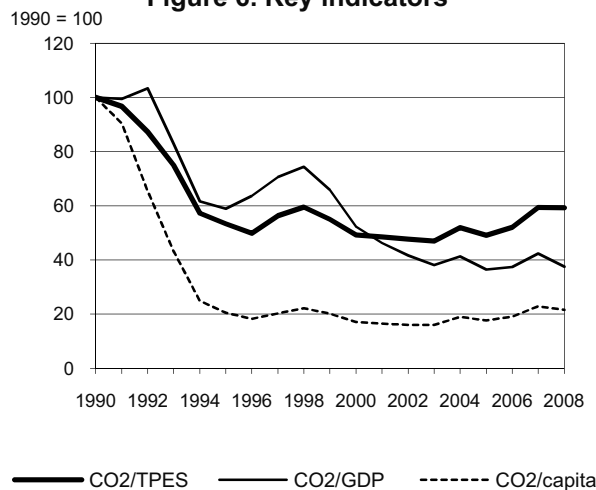
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	17.08	309.1%	22.1	22.1
Road - oil	11.66	23.1%	15.1	37.3
Manufacturing industries - oil	8.51	33.4%	11.0	48.3
Main activity prod. elec. and heat - gas	6.98	438.8%	9.0	57.3
Manufacturing industries - gas	2.88	x	3.7	61.1
Non-specified other - oil	1.81	-54.6%	2.4	63.4
Other energy industries - oil	1.67	35.9%	2.2	65.6
Residential - oil	1.56	-0.2%	2.0	67.6
Unallocated autoproducers - oil	1.08	13.0%	1.4	69.0
Non-specified other - gas	0.46	-73.9%	0.6	69.6
Other transport - oil	0.40	x	0.5	70.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>54.44</i>	<i>75.7%</i>	<i>70.6</i>	<i>70.6</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Tajikistan

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Tajikistan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	10.90	2.44	2.17	2.37	2.60	3.17	3.03	-72.2%
CO ₂ Reference Approach (Mt of CO ₂)	11.17	2.44	2.17	2.37	2.60	3.17	3.04	-72.8%
TPES (PJ)	222	93	90	98	102	109	104	-53.0%
TPES (Mtoe)	5.31	2.23	2.15	2.35	2.43	2.60	2.49	-53.0%
GDP (billion 2000 USD)	2.26	0.86	0.86	1.35	1.44	1.55	1.68	-25.9%
GDP PPP (billion 2000 USD)	11.52	4.38	4.39	6.86	7.34	7.91	8.54	-25.9%
Population (millions)	5.30	5.78	6.17	6.54	6.63	6.73	6.84	28.9%
CO ₂ / TPES (t CO ₂ per TJ)	49.0	26.2	24.1	24.1	25.5	29.1	29.0	-40.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	4.82	2.84	2.52	1.76	1.80	2.04	1.81	-62.5%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.95	0.56	0.49	0.35	0.35	0.40	0.36	-62.5%
CO ₂ / population (t CO ₂ per capita)	2.06	0.42	0.35	0.36	0.39	0.47	0.44	-78.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.35	1.65	1.04	-	3.03	-72.2%
Main activity producer elec. and heat	-	-	0.53	-	0.53	-65.6%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	-	-	-	-	-	-
Transport	-	0.26	0.03	-	0.28	-60.9%
<i>of which: road</i>	-	0.26	0.03	-	0.28	-60.9%
Other	0.35	1.39	0.48	-	2.22	-74.3%
<i>of which: residential</i>	-	-	-	-	-	-
Reference Approach	0.35	1.65	1.04	-	3.04	-72.8%
Diff. due to losses and/or transformation	-	0.00	-	-	0.00	
Statistical differences	- 0.00	-	-	-	- 0.00	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.01	-	-	0.01	-73.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Non-specified other - oil	1.39	-68.8%	14.9	14.9
Main activity prod. elec. and heat - gas	0.53	-65.6%	5.6	20.5
Non-specified other - gas	0.48	-71.8%	5.2	25.7
Non-specified other sectors - coal/peat	0.35	-85.8%	3.8	29.5
Road - oil	0.26	-64.6%	2.8	32.2
Road - gas	0.03	x	0.3	32.5
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>3.03</i>	<i>-72.2%</i>	<i>32.5</i>	<i>32.5</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

United Republic of Tanzania

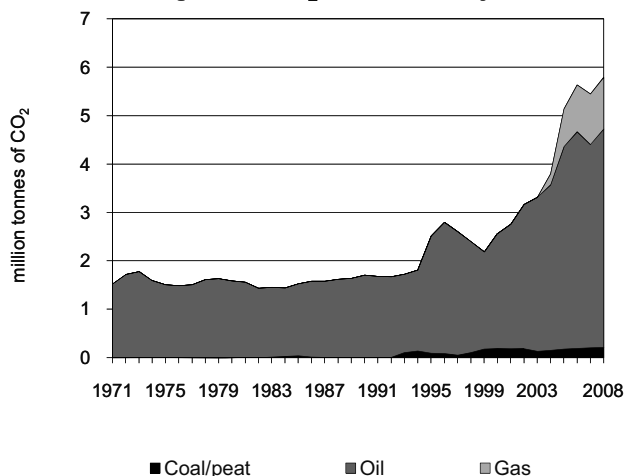
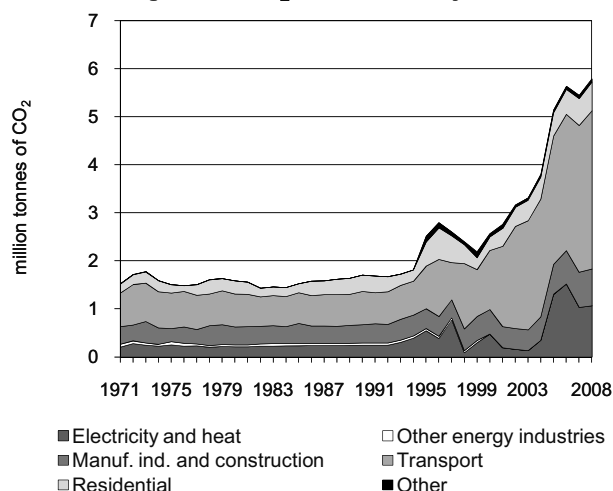
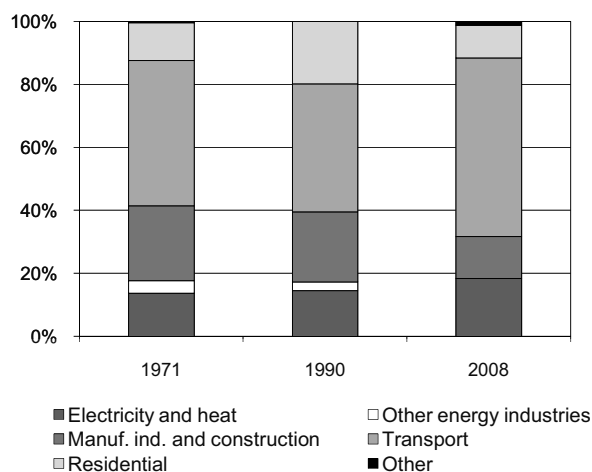
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

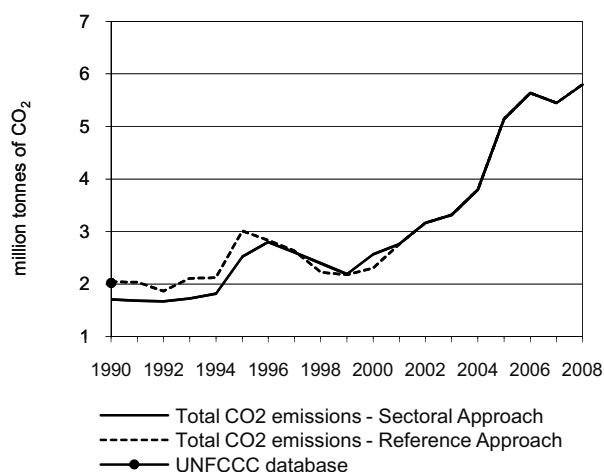


Figure 5. Electricity generation by fuel

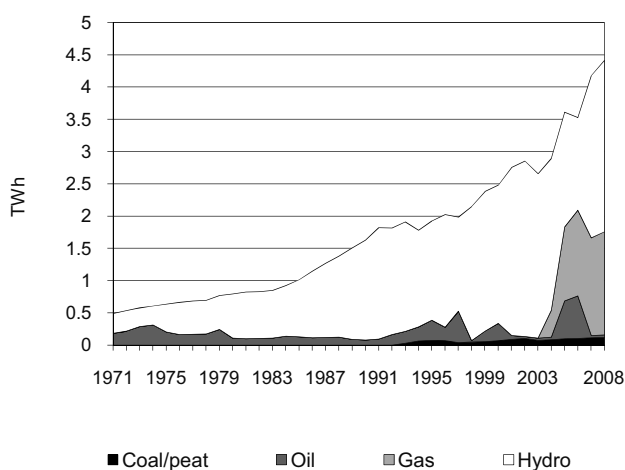
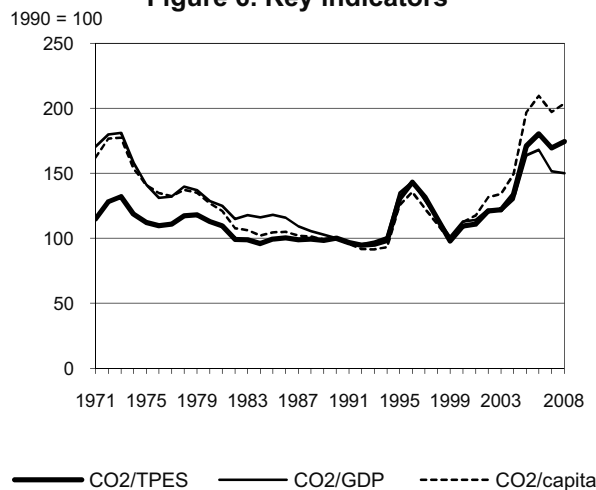


Figure 6. Key indicators



United Republic of Tanzania

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	1.71	2.52	2.57	5.15	5.64	5.45	5.79	239.7%
CO ₂ Reference Approach (Mt of CO ₂)	2.04	3.01	2.30	5.15	5.64	5.45	5.80	184.2%
TPES (PJ)	408	461	561	718	747	768	794	94.8%
TPES (Mtoe)	9.73	11.02	13.39	17.16	17.84	18.33	18.96	94.8%
GDP (billion 2000 USD)	6.80	7.43	9.08	12.53	13.37	14.33	15.39	126.3%
GDP PPP (billion 2000 USD)	13.21	14.44	17.64	24.33	25.97	27.83	29.90	126.4%
Population (millions)	25.46	29.97	34.13	39.01	40.12	41.28	42.48	66.9%
CO ₂ / TPES (t CO ₂ per TJ)	4.2	5.5	4.6	7.2	7.5	7.1	7.3	74.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.25	0.34	0.28	0.41	0.42	0.38	0.38	50.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.13	0.17	0.15	0.21	0.22	0.20	0.19	50.0%
CO ₂ / population (t CO ₂ per capita)	0.07	0.08	0.08	0.13	0.14	0.13	0.14	103.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.22	4.51	1.07	-	5.79	239.7%
Main activity producer elec. and heat	-	0.04	0.90	-	0.94	278.5%
Unallocated autoproducers	0.13	-	-	-	0.13	x
Other energy industries	-	-	-	-	-	-100.0%
Manufacturing industries and construction	0.08	0.51	0.17	-	0.77	101.7%
Transport	-	3.29	-	-	3.29	375.1%
<i>of which: road</i>	-	3.29	-	-	3.29	375.1%
Other	-	0.67	-	-	0.67	98.0%
<i>of which: residential</i>	-	0.60	-	-	0.60	77.3%
Reference Approach	0.22	4.51	1.07	-	5.80	184.2%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	0.00	0.01	-	0.01	-
<i>Memo: international marine bunkers</i>	-	0.07	-	-	0.07	-11.5%
<i>Memo: international aviation bunkers</i>	-	0.32	-	-	0.32	46.0%

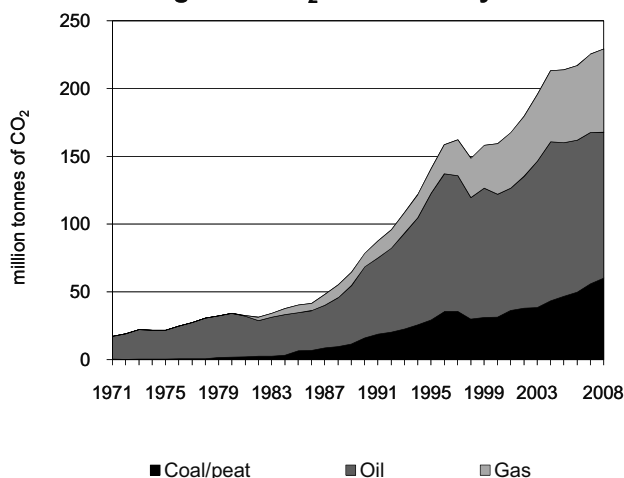
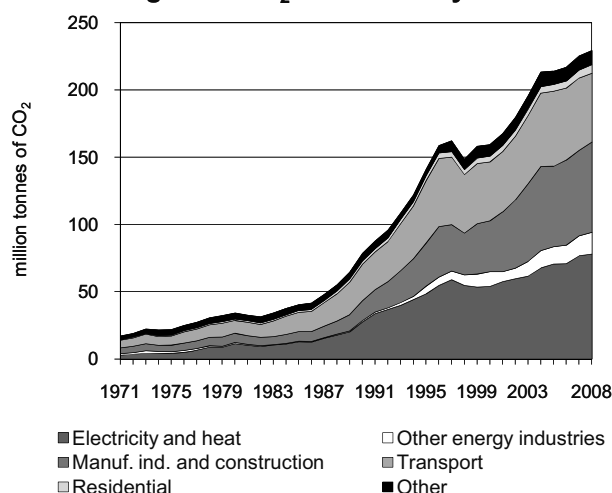
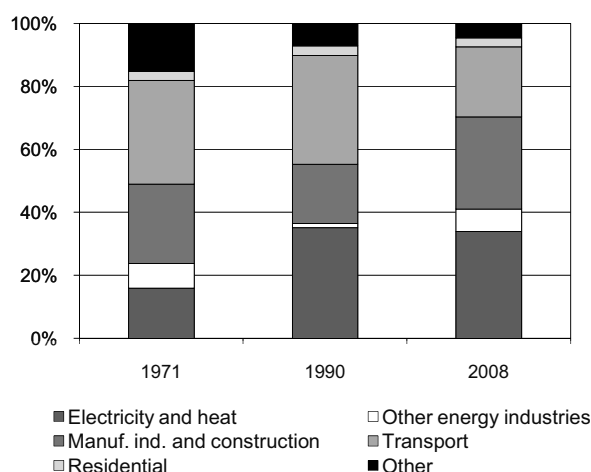
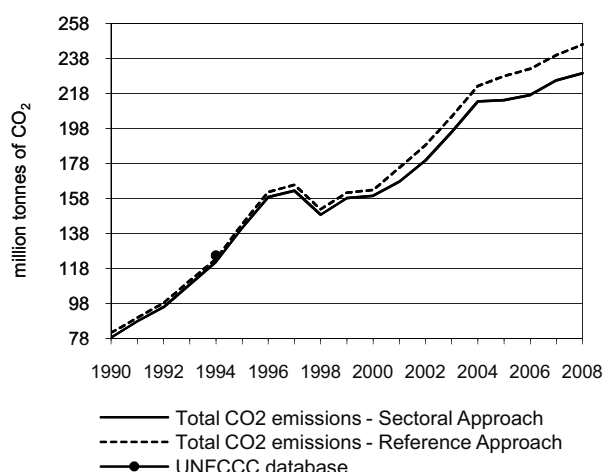
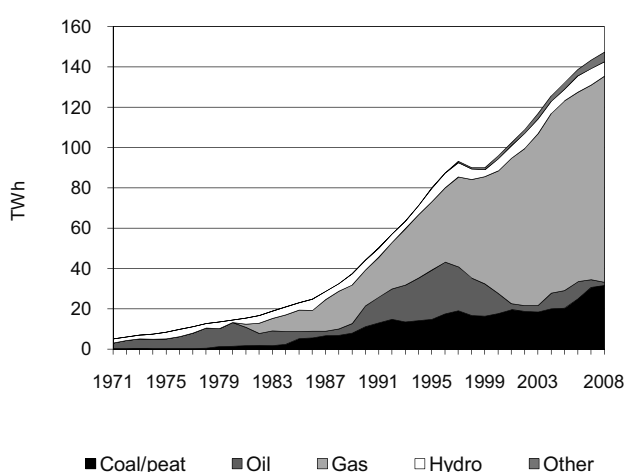
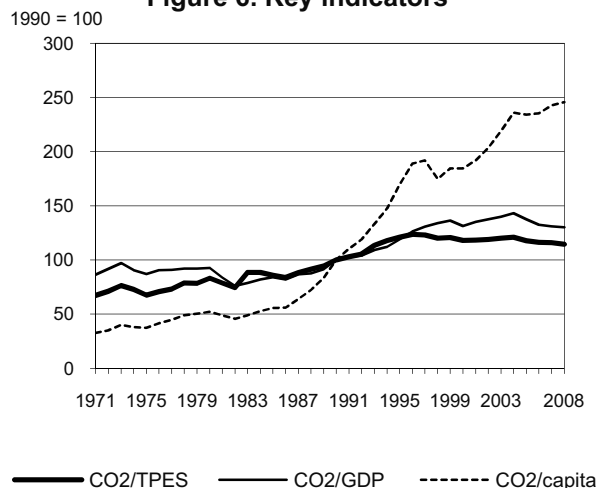
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	3.29	375.1%	5.1	5.1
Main activity prod. elec. and heat - gas	0.90	x	1.4	6.5
Residential - oil	0.60	77.3%	0.9	7.4
Manufacturing industries - oil	0.51	39.1%	0.8	8.2
Manufacturing industries - gas	0.17	x	0.3	8.5
Unallocated autoproducers - coal/peat	0.13	x	0.2	8.7
Manufacturing industries - coal/peat	0.08	723.7%	0.1	8.8
Non-specified other - oil	0.07	x	0.1	8.9
Main activity prod. elec. and heat - oil	0.04	-85.1%	0.1	9.0
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>5.79</i>	<i>239.7%</i>	<i>9.0</i>	<i>9.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Thailand

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Thailand

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	78.59	141.26	159.46	214.11	217.09	225.52	229.47	192.0%
CO ₂ Reference Approach (Mt of CO ₂)	81.37	143.49	162.86	227.87	232.06	239.93	246.07	202.4%
TPES (PJ)	1 760	2 614	3 024	4 071	4 179	4 351	4 488	155.1%
TPES (Mtoe)	42.03	62.44	72.23	97.23	99.82	103.93	107.20	155.1%
GDP (billion 2000 USD)	79.36	120.01	122.73	157.39	165.61	173.77	178.25	124.6%
GDP PPP (billion 2000 USD)	251.14	379.77	388.38	498.06	524.09	549.91	564.09	124.6%
Population (millions)	56.67	60.14	62.35	65.95	66.51	66.98	67.39	18.9%
CO ₂ / TPES (t CO ₂ per TJ)	44.7	54.0	52.7	52.6	51.9	51.8	51.1	14.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.99	1.18	1.30	1.36	1.31	1.30	1.29	30.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.31	0.37	0.41	0.43	0.41	0.41	0.41	30.0%
CO ₂ / population (t CO ₂ per capita)	1.39	2.35	2.56	3.25	3.26	3.37	3.41	145.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	60.34	107.51	61.62	-	229.47	192.0%
Main activity producer elec. and heat	27.50	1.19	42.08	-	70.77	155.7%
Unallocated autoproducers	2.36	0.02	4.85	-	7.23	x
Other energy industries	-	7.98	8.33	-	16.31	+
Manufacturing industries and construction	30.48	31.64	4.95	-	67.08	353.6%
Transport	-	49.72	1.40	-	51.12	88.5%
<i>of which: road</i>	-	49.25	1.40	-	50.65	97.3%
Other	-	16.95	-	-	16.95	111.4%
<i>of which: residential</i>	-	6.36	-	-	6.36	158.4%
Reference Approach	61.28	115.22	69.57	-	246.07	202.4%
Diff. due to losses and/or transformation	0.01	7.82	7.95	-	15.78	
Statistical differences	0.92	- 0.10	0.00	-	0.82	
<i>Memo: international marine bunkers</i>	-	5.18	-	-	5.18	204.4%
<i>Memo: international aviation bunkers</i>	-	10.98	-	-	10.98	96.6%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	49.25	91.8%	13.5	13.5
Main activity prod. elec. and heat - gas	42.08	371.0%	11.5	25.0
Manufacturing industries - oil	31.64	258.8%	8.7	33.7
Manufacturing industries - coal/peat	30.48	455.8%	8.4	42.1
Main activity prod. elec. and heat - coal/peat	27.50	159.9%	7.5	49.6
Non-specified other - oil	10.59	90.6%	2.9	52.5
Other energy industries - gas	8.33	+	2.3	54.8
Other energy industries - oil	7.98	+	2.2	57.0
Residential - oil	6.36	158.4%	1.7	58.7
Manufacturing industries - gas	4.95	920.5%	1.4	60.1
Unallocated autoproducers - gas	4.85	x	1.3	61.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>229.47</i>	<i>192.0%</i>	<i>62.9</i>	<i>62.9</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Togo

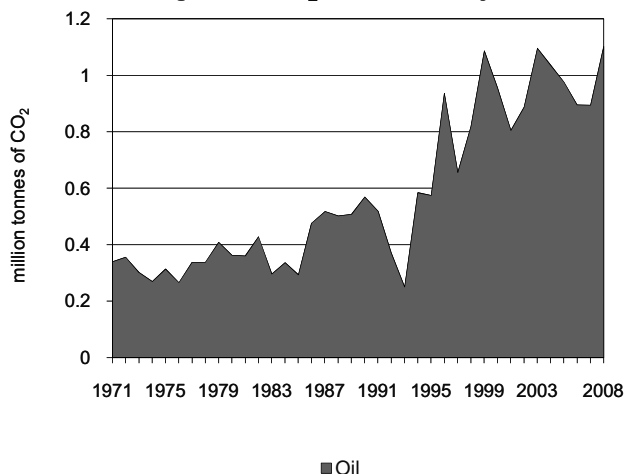
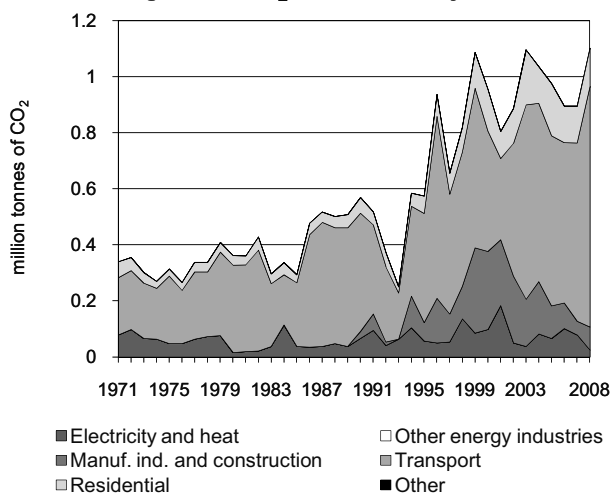
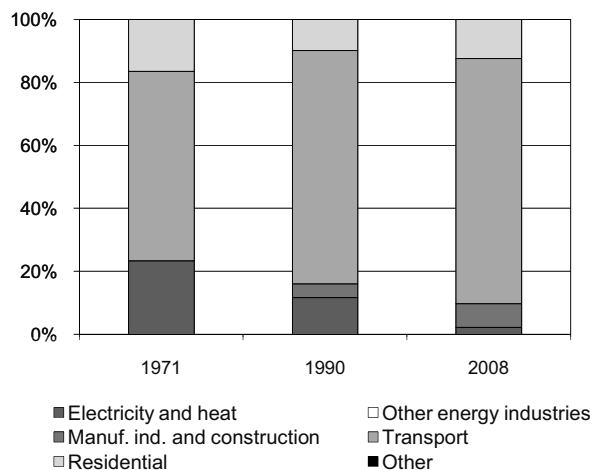
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

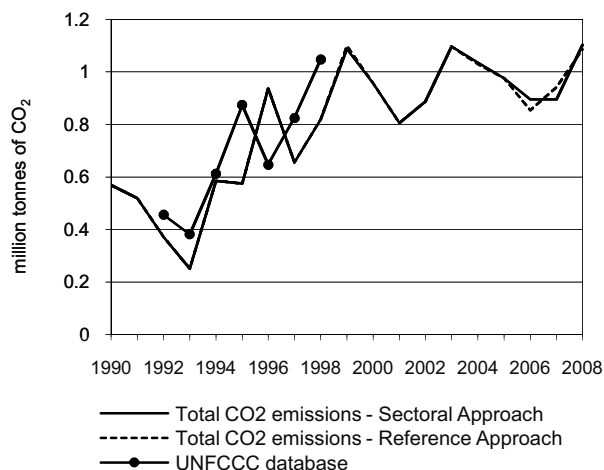


Figure 5. Electricity generation by fuel

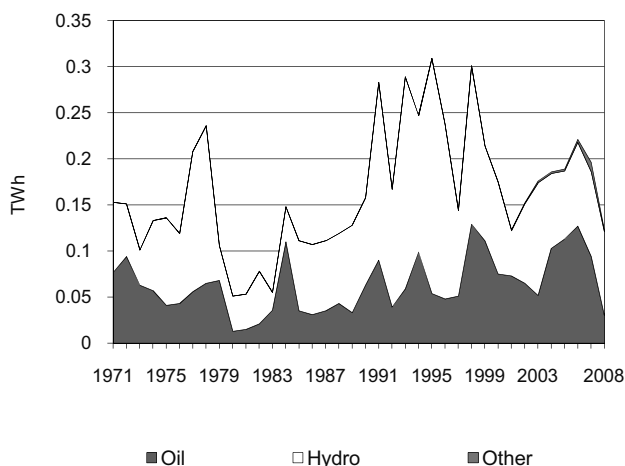
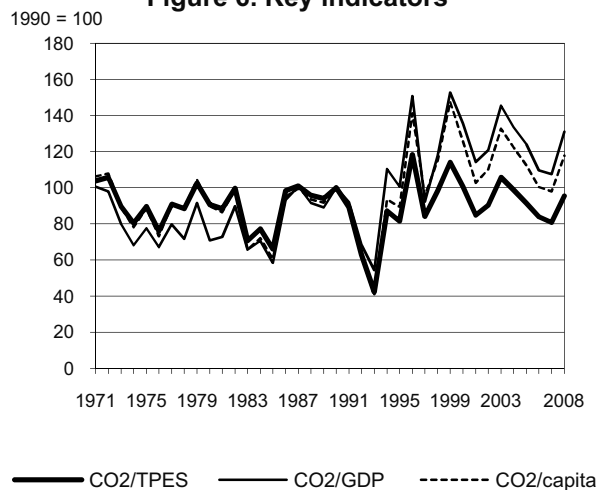


Figure 6. Key indicators



Togo

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	0.57	0.57	0.96	0.98	0.90	0.90	1.10	93.7%
CO ₂ Reference Approach (Mt of CO ₂)	0.57	0.57	0.96	0.98	0.85	0.94	1.09	90.8%
TPES (PJ)	53	66	88	99	99	103	107	102.9%
TPES (Mtoe)	1.26	1.57	2.11	2.37	2.37	2.46	2.56	102.9%
GDP (billion 2000 USD)	1.07	1.08	1.33	1.48	1.54	1.57	1.58	47.8%
GDP PPP (billion 2000 USD)	5.87	5.89	7.28	8.10	8.42	8.58	8.67	47.9%
Population (millions)	3.93	4.43	5.25	5.99	6.15	6.30	6.46	64.5%
CO ₂ / TPES (t CO ₂ per TJ)	10.8	8.8	10.8	9.8	9.0	8.7	10.3	-4.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.53	0.53	0.72	0.66	0.58	0.57	0.70	31.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.10	0.10	0.13	0.12	0.11	0.10	0.13	31.0%
CO ₂ / population (t CO ₂ per capita)	0.15	0.13	0.18	0.16	0.15	0.14	0.17	17.7%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	1.10	-	-	1.10	93.7%
Main activity producer elec. and heat	-	0.02	-	-	0.02	-63.2%
Unallocated autoproducers	-	0.00	-	-	0.00	-50.0%
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	-	0.08	-	-	0.08	234.0%
Transport	-	0.86	-	-	0.86	103.4%
<i>of which: road</i>	-	0.86	-	-	0.86	103.4%
Other	-	0.14	-	-	0.14	144.0%
<i>of which: residential</i>	-	0.14	-	-	0.14	144.0%
Reference Approach	-	1.09	-	-	1.09	90.8%
Diff. due to losses and/or transformation	-	-	-	-	-	-
Statistical differences	-	- 0.02	-	-	- 0.02	-
<i>Memo: international marine bunkers</i>	-	0.01	-	-	0.01	..
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	78.8%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	0.86	103.4%	13.2	13.2
Residential - oil	0.14	144.0%	2.1	15.3
Manufacturing industries - oil	0.08	234.0%	1.3	16.6
Main activity prod. elec. and heat - oil	0.02	-63.2%	0.3	16.9
Unallocated autoproducers - oil	0.00	-50.0%	0.0	17.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>1.10</i>	<i>93.7%</i>	<i>17.0</i>	<i>17.0</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Trinidad and Tobago

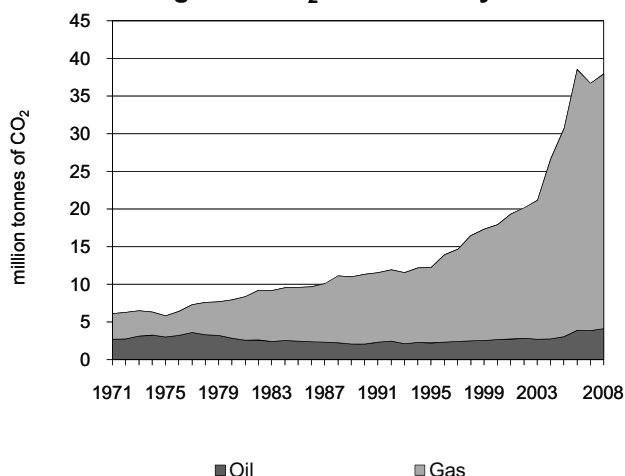
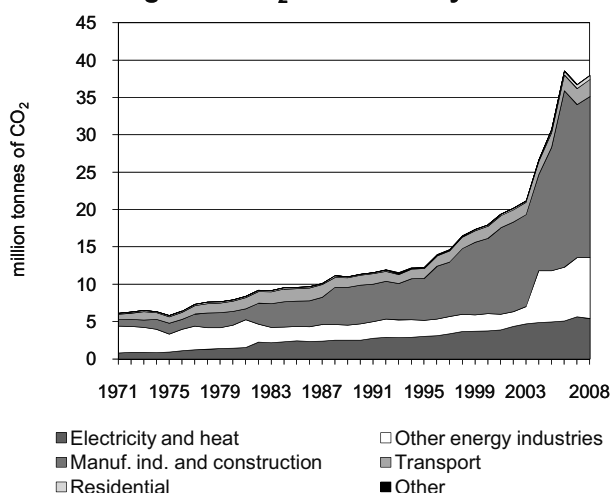
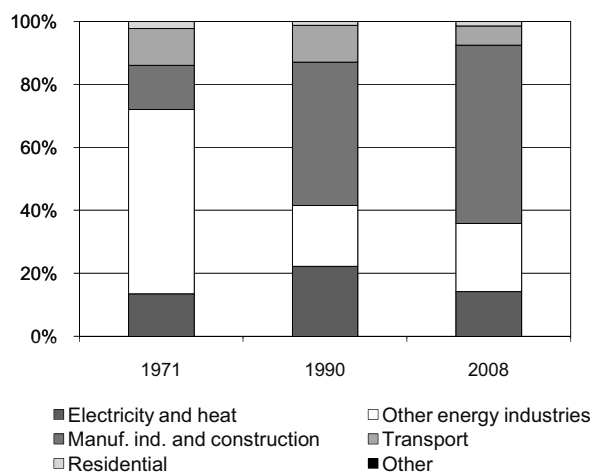
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

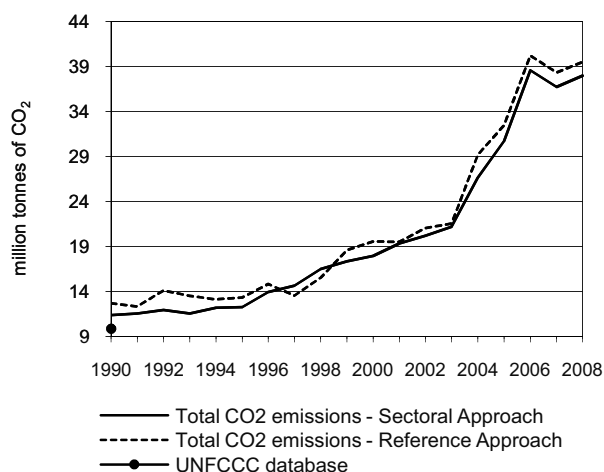


Figure 5. Electricity generation by fuel

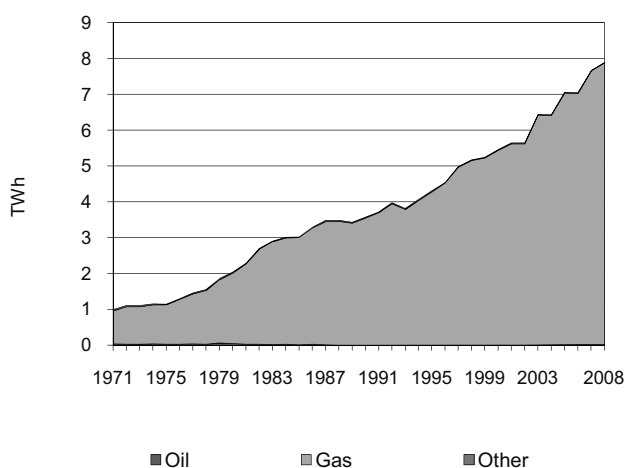
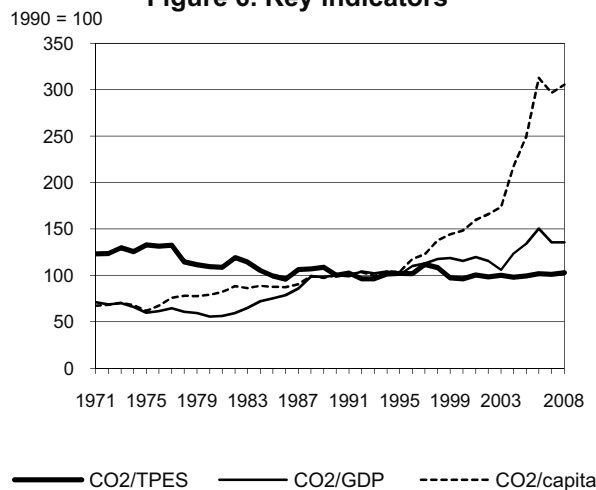


Figure 6. Key indicators



Trinidad and Tobago

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	11.37	12.27	17.94	30.71	38.56	36.72	37.96	233.9%
CO ₂ Reference Approach (Mt of CO ₂)	12.71	13.34	19.56	32.45	40.19	38.31	39.50	210.8%
TPES (PJ)	250	264	410	680	834	799	813	225.1%
TPES (Mtoe)	5.97	6.30	9.80	16.24	19.91	19.08	19.41	225.1%
GDP (billion 2000 USD)	5.97	6.40	8.15	12.00	13.47	14.21	14.69	146.1%
GDP PPP (billion 2000 USD)	8.55	9.16	11.68	17.19	19.29	20.35	21.04	146.0%
Population (millions)	1.22	1.27	1.30	1.32	1.33	1.33	1.34	9.3%
CO ₂ / TPES (t CO ₂ per TJ)	45.5	46.5	43.7	45.1	46.3	46.0	46.7	2.7%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.90	1.92	2.20	2.56	2.86	2.58	2.58	35.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.33	1.34	1.54	1.79	2.00	1.80	1.80	35.7%
CO ₂ / population (t CO ₂ per capita)	9.29	9.66	13.79	23.19	29.04	27.55	28.37	205.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	4.11	33.85	-	37.96	233.9%
Main activity producer elec. and heat	-	0.03	5.36	-	5.39	123.9%
Unallocated autoproducers	-	-	0.03	-	0.03	-77.9%
Other energy industries	-	1.05	7.17	-	8.22	275.3%
Manufacturing industries and construction	-	0.43	21.05	-	21.48	315.0%
Transport	-	2.31	-	-	2.31	73.6%
<i>of which: road</i>	-	2.31	-	-	2.31	79.8%
Other	-	0.29	0.24	-	0.53	284.2%
<i>of which: residential</i>	-	0.29	0.24	-	0.53	284.2%
Reference Approach	-	5.65	33.85	-	39.50	210.8%
Diff. due to losses and/or transformation	-	1.31	-	-	1.31	
Statistical differences	-	0.23	0.00	-	0.23	
<i>Memo: international marine bunkers</i>	-	0.72	-	-	0.72	557.6%
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	-3.2%

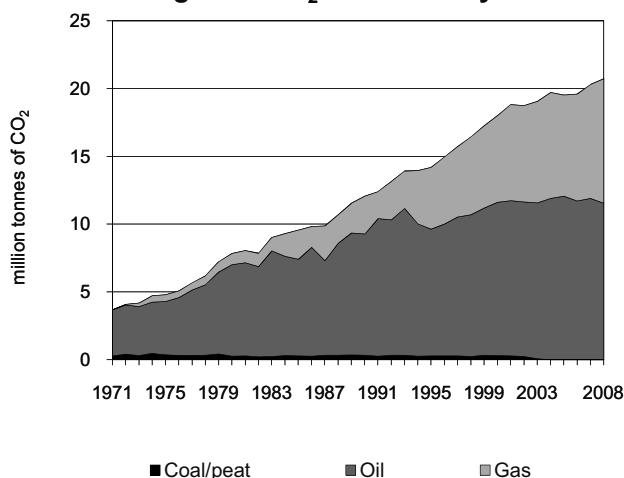
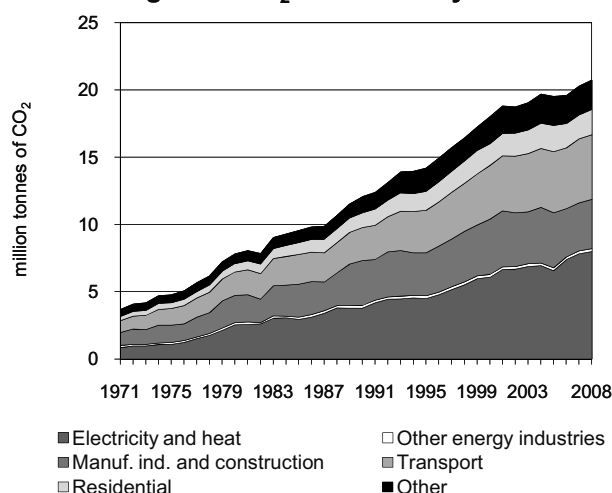
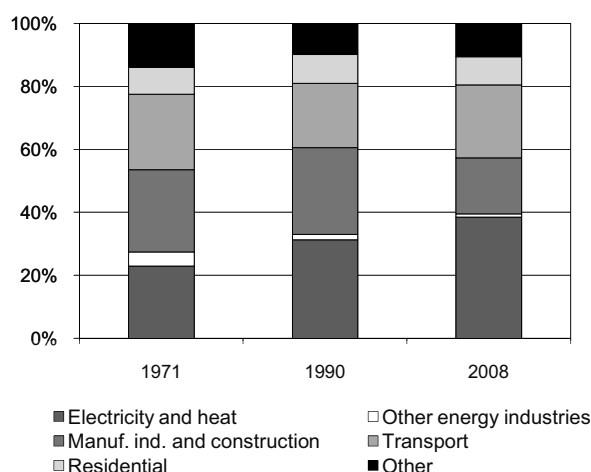
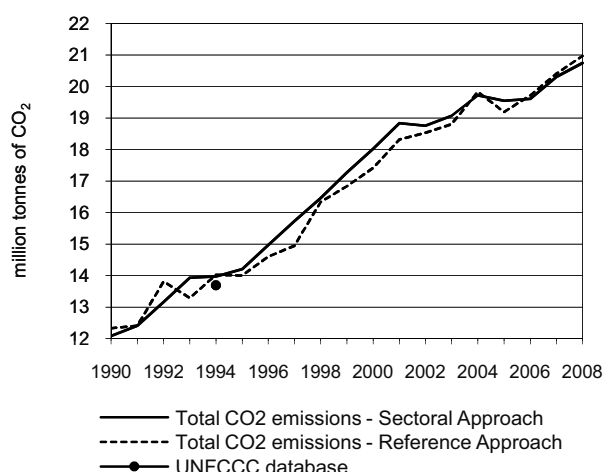
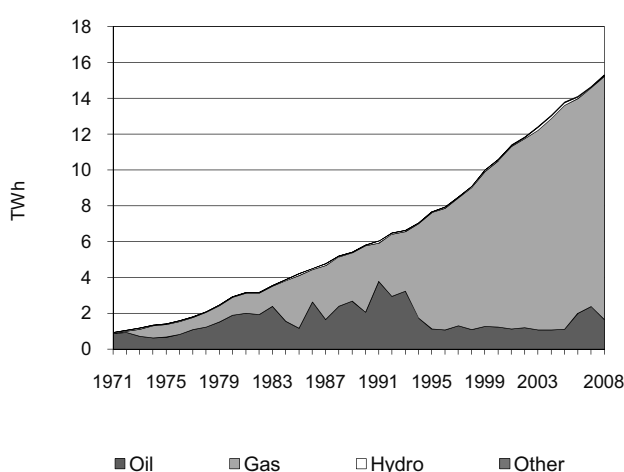
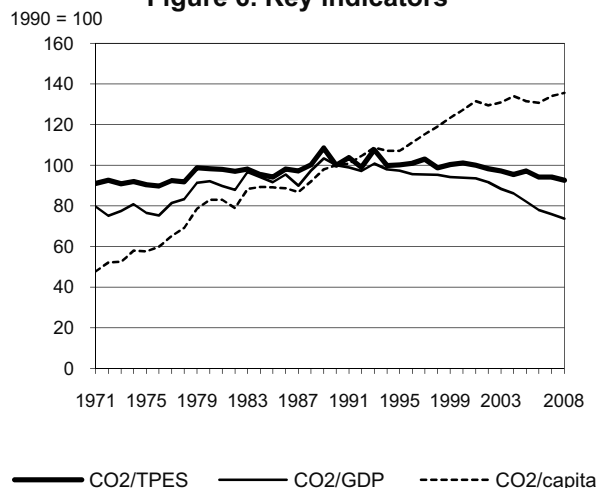
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - gas	21.05	331.4%	42.5	42.5
Other energy industries - gas	7.17	284.8%	14.5	57.0
Main activity prod. elec. and heat - gas	5.36	123.1%	10.8	67.9
Road - oil	2.31	79.8%	4.7	72.6
Other energy industries - oil	1.05	221.4%	2.1	74.7
Manufacturing industries - oil	0.43	45.6%	0.9	75.6
Residential - oil	0.29	109.0%	0.6	76.1
Residential - gas	0.24	x	0.5	76.6
Main activity prod. elec. and heat - oil	0.03	800.3%	0.1	76.7
Unallocated autoproducers - gas	0.03	-77.9%	0.1	76.7
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>37.96</i>	<i>233.9%</i>	<i>76.7</i>	<i>76.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Tunisia

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Tunisia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	12.08	14.20	18.02	19.54	19.60	20.31	20.75	71.7%
CO ₂ Reference Approach (Mt of CO ₂)	12.33	14.01	17.41	19.19	19.72	20.40	20.96	70.0%
TPES (PJ)	207	243	306	345	357	370	384	85.6%
TPES (Mtoe)	4.95	5.80	7.31	8.23	8.52	8.84	9.18	85.6%
GDP (billion 2000 USD)	12.24	14.79	19.44	24.14	25.50	27.12	28.50	132.9%
GDP PPP (billion 2000 USD)	37.79	45.69	60.05	74.54	78.76	83.75	88.02	132.9%
Population (millions)	8.15	8.96	9.56	10.03	10.13	10.23	10.33	26.6%
CO ₂ / TPES (t CO ₂ per TJ)	58.4	58.4	58.9	56.7	54.9	54.9	54.0	-7.5%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.99	0.96	0.93	0.81	0.77	0.75	0.73	-26.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.32	0.31	0.30	0.26	0.25	0.24	0.24	-26.3%
CO ₂ / population (t CO ₂ per capita)	1.48	1.59	1.88	1.95	1.94	1.99	2.01	35.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	11.56	9.19	-	20.75	71.7%
Main activity producer elec. and heat	-	0.53	6.60	-	7.13	122.9%
Unallocated autoproducers	-	0.86	-	-	0.86	47.6%
Other energy industries	-	0.21	-	-	0.21	3.7%
Manufacturing industries and construction	-	1.76	1.92	-	3.68	10.3%
Transport	-	4.80	0.00	-	4.80	94.8%
<i>of which: road</i>	-	4.68	-	-	4.68	92.2%
Other	-	3.40	0.66	-	4.06	77.0%
<i>of which: residential</i>	-	1.39	0.48	-	1.87	69.8%
Reference Approach	-	11.54	9.43	-	20.96	70.0%
Diff. due to losses and/or transformation	-	0.03	-	-	0.03	
Statistical differences	-	- 0.05	0.24	-	0.19	
<i>Memo: international marine bunkers</i>	-	0.03	-	-	0.03	-62.9%
<i>Memo: international aviation bunkers</i>	-	0.37	-	-	0.37	-35.8%

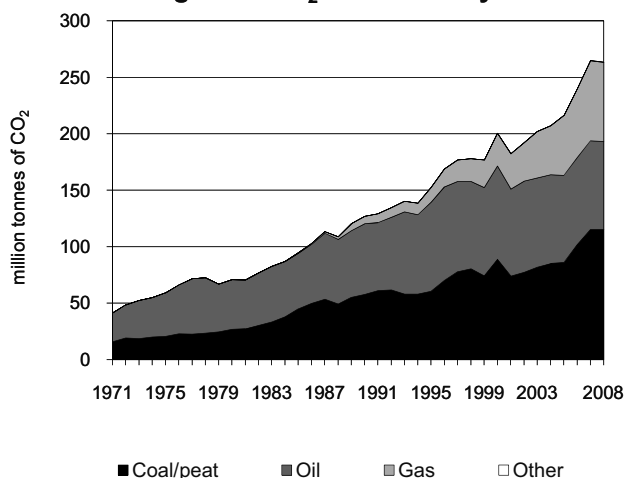
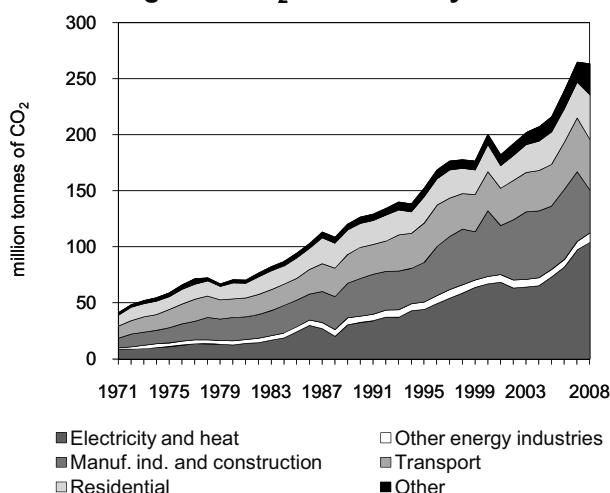
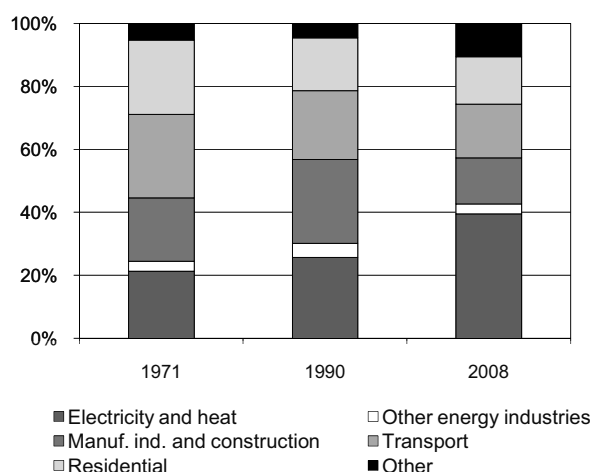
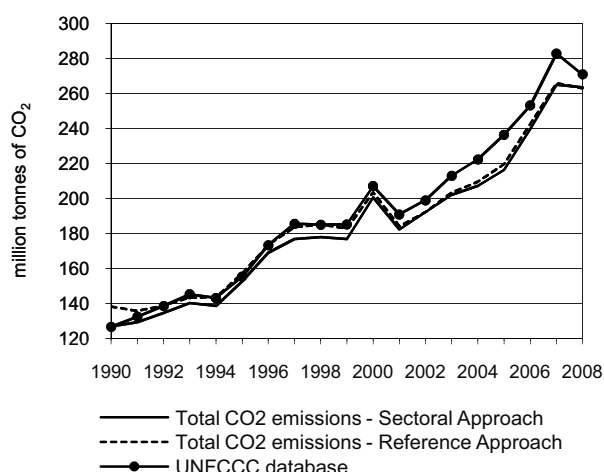
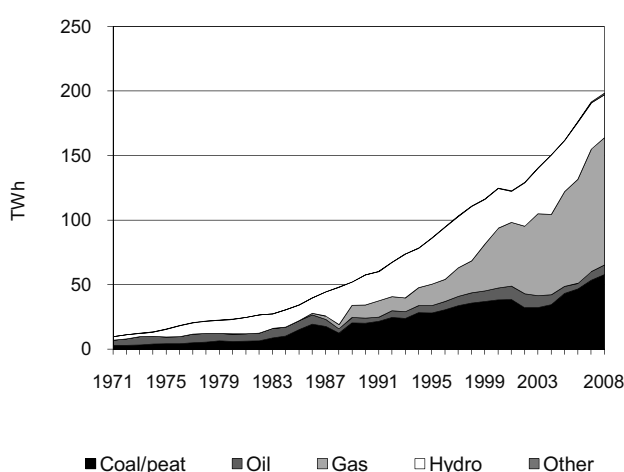
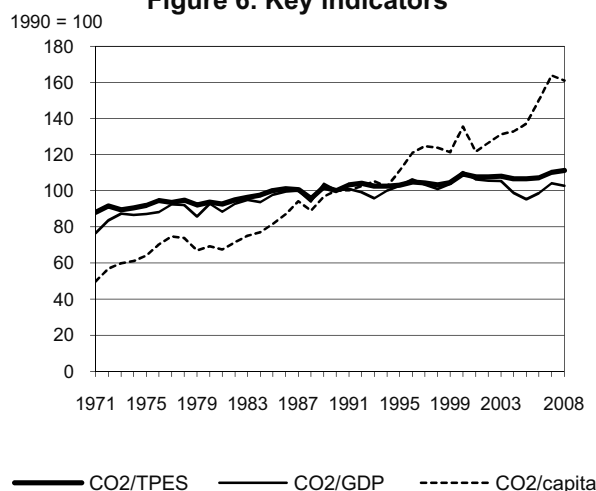
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	6.60	219.2%	18.0	18.0
Road - oil	4.68	92.2%	12.8	30.8
Non-specified other - oil	2.01	76.2%	5.5	36.3
Manufacturing industries - gas	1.92	222.7%	5.3	41.6
Manufacturing industries - oil	1.76	-27.3%	4.8	46.4
Residential - oil	1.39	37.3%	3.8	50.2
Unallocated autoproducers - oil	0.86	47.6%	2.4	52.5
Main activity prod. elec. and heat - oil	0.53	-53.3%	1.4	54.0
Residential - gas	0.48	454.8%	1.3	55.3
Other energy industries - oil	0.21	3.7%	0.6	55.9
Non-specified other - gas	0.18	250.8%	0.5	56.3
<i>Memo: total CO₂ from fuel combustion</i>	<i>20.75</i>	<i>71.7%</i>	<i>56.7</i>	<i>56.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Turkey

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Turkey

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	126.91	152.66	200.56	216.36	239.67	265.00	263.53	107.6%
CO ₂ Reference Approach (Mt of CO ₂)	138.20	157.28	203.48	219.65	242.61	265.83	262.94	90.3%
TPES (PJ)	2 209	2 577	3 197	3 533	3 895	4 187	4 124	86.7%
TPES (Mtoe)	52.76	61.55	76.35	84.38	93.04	100.01	98.50	86.7%
GDP (billion 2000 USD)	185.95	217.79	266.56	333.03	355.99	372.61	375.96	102.2%
GDP PPP (billion 2000 USD)	411.11	481.49	589.31	736.26	787.02	823.76	831.16	102.2%
Population (millions)	55.12	59.76	64.26	68.58	69.42	70.26	71.08	29.0%
CO ₂ / TPES (t CO ₂ per TJ)	57.5	59.2	62.7	61.2	61.5	63.3	63.9	11.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.68	0.70	0.75	0.65	0.67	0.71	0.70	2.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.31	0.32	0.34	0.29	0.30	0.32	0.32	2.7%
CO ₂ / population (t CO ₂ per capita)	2.30	2.55	3.12	3.15	3.45	3.77	3.71	61.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	115.44	77.78	70.21	0.10	263.53	107.6%
Main activity producer elec. and heat	54.67	4.13	33.75	0.02	92.57	244.4%
Unallocated autoproducers	5.33	1.35	4.79	0.08	11.56	98.1%
Other energy industries	3.69	3.78	0.94	-	8.42	49.7%
Manufacturing industries and construction	25.33	5.31	7.88	-	38.51	14.2%
Transport	-	44.67	0.43	-	45.10	62.4%
<i>of which: road</i>	-	39.46	0.06	-	39.52	57.0%
Other	26.41	18.54	22.42	-	67.37	148.6%
<i>of which: residential</i>	19.74	4.63	15.25	-	39.61	86.3%
Reference Approach	117.60	74.90	70.34	0.10	262.94	90.3%
Diff. due to losses and/or transformation	3.03	- 0.81	0.13	-	2.34	
Statistical differences	- 0.86	- 2.07	-	-	- 2.93	
<i>Memo: international marine bunkers</i>	-	2.06	-	-	2.06	454.5%
<i>Memo: international aviation bunkers</i>	-	3.86	-	-	3.86	624.6%

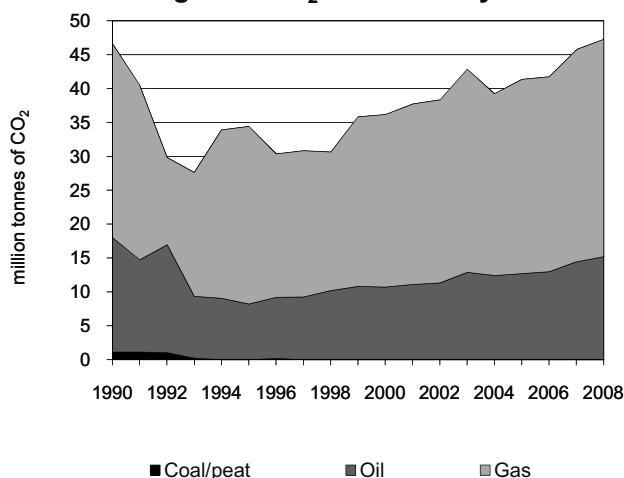
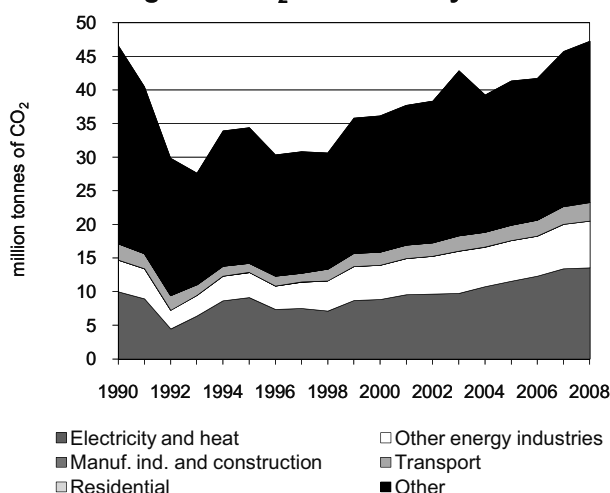
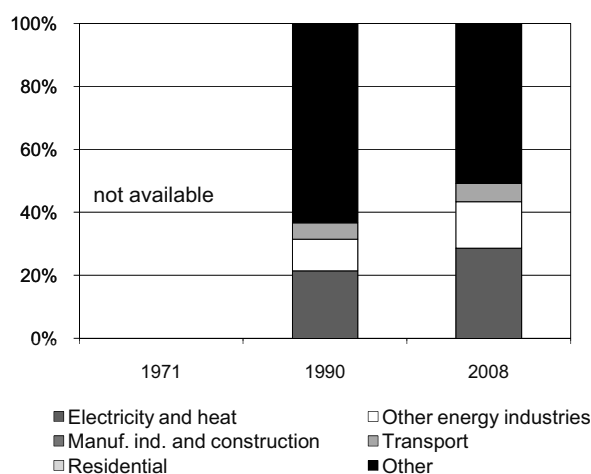
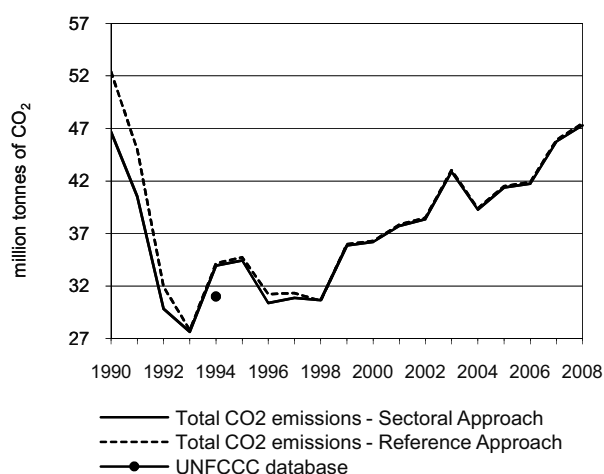
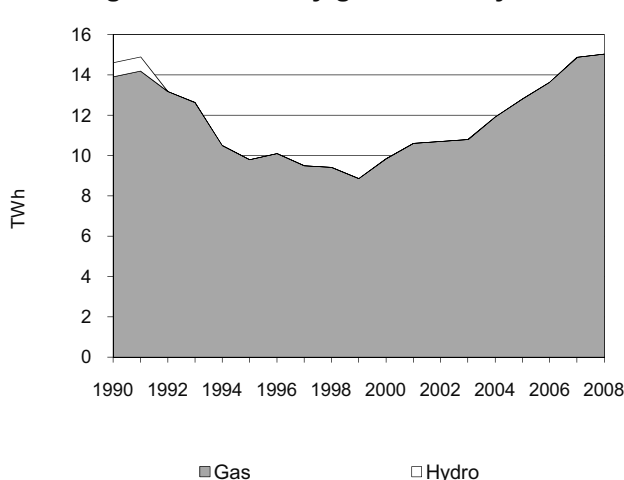
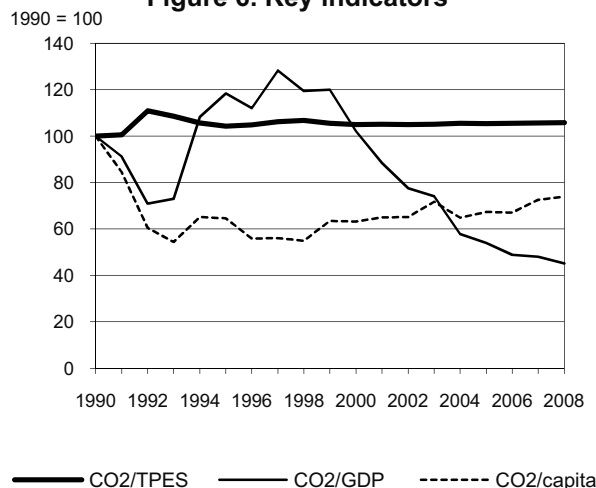
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	54.67	163.1%	15.2	15.2
Road - oil	39.46	56.7%	11.0	26.2
Main activity prod. elec. and heat - gas	33.75	578.8%	9.4	35.6
Manufacturing industries - coal/peat	25.33	30.0%	7.1	42.7
Residential - coal/peat	19.74	61.3%	5.5	48.2
Residential - gas	15.25	+	4.2	52.4
Non-specified other - oil	13.91	138.2%	3.9	56.3
Manufacturing industries - gas	7.88	451.0%	2.2	58.5
Non-specified other - gas	7.17	x	2.0	60.5
Non-specified other sectors - coal/peat	6.68	+	1.9	62.3
Unallocated autoproducers - coal/peat	5.33	56.2%	1.5	63.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>263.53</i>	<i>107.6%</i>	<i>73.4</i>	<i>73.4</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Turkmenistan

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Turkmenistan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	46.64	34.43	36.19	41.37	41.76	45.77	47.29	1.4%
CO ₂ Reference Approach (Mt of CO ₂)	52.41	34.74	36.30	41.52	41.91	45.93	47.46	-9.5%
TPES (PJ)	822	582	607	692	697	763	788	-4.2%
TPES (Mtoe)	19.63	13.90	14.51	16.52	16.65	18.23	18.81	-4.2%
GDP (billion 2000 USD)	3.82	2.38	2.91	6.28	7.00	7.81	8.58	124.4%
GDP PPP (billion 2000 USD)	20.62	12.85	15.67	33.90	37.76	42.14	46.27	124.4%
Population (millions)	3.67	4.19	4.50	4.83	4.90	4.96	5.03	37.1%
CO ₂ / TPES (t CO ₂ per TJ)	56.7	59.2	59.6	59.8	59.9	60.0	60.0	5.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	12.21	14.45	12.46	6.59	5.97	5.86	5.52	-54.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	2.26	2.68	2.31	1.22	1.11	1.09	1.02	-54.8%
CO ₂ / population (t CO ₂ per capita)	12.71	8.21	8.04	8.56	8.52	9.22	9.41	-26.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	15.23	32.06	-	47.29	1.4%
Main activity producer elec. and heat	-	-	13.56	-	13.56	35.4%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	3.77	3.19	-	6.96	48.1%
Manufacturing industries and construction	-	-	-	-	-	-
Transport	-	2.77	-	-	2.77	14.6%
<i>of which: road</i>	-	2.77	-	-	2.77	14.6%
Other	-	8.69	15.31	-	24.01	-18.6%
<i>of which: residential</i>	-	-	-	-	-	-
Reference Approach	-	15.40	32.06	-	47.46	-9.5%
Diff. due to losses and/or transformation	-	0.17	-	-	0.17	
Statistical differences	-	-	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

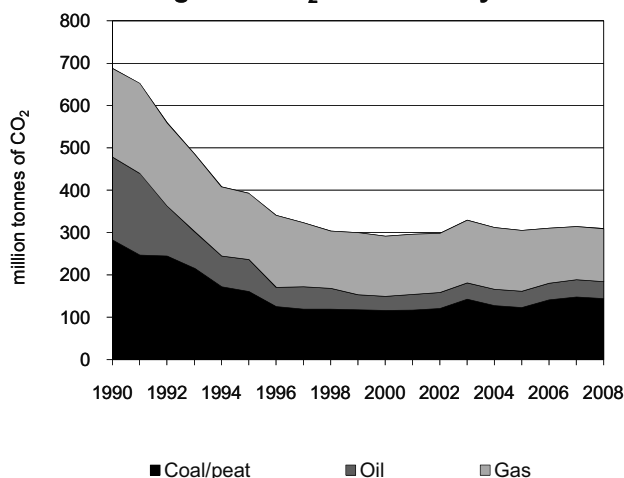
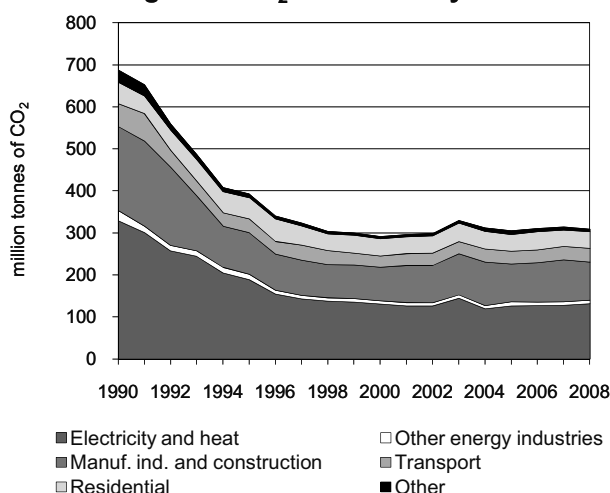
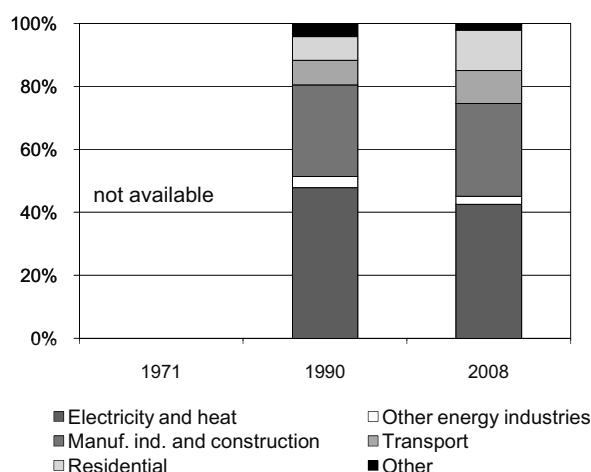
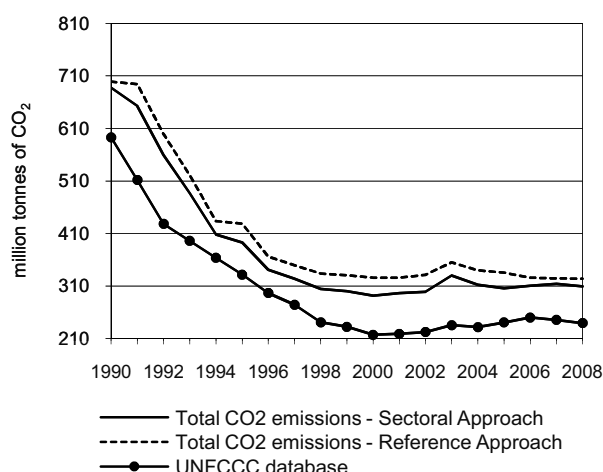
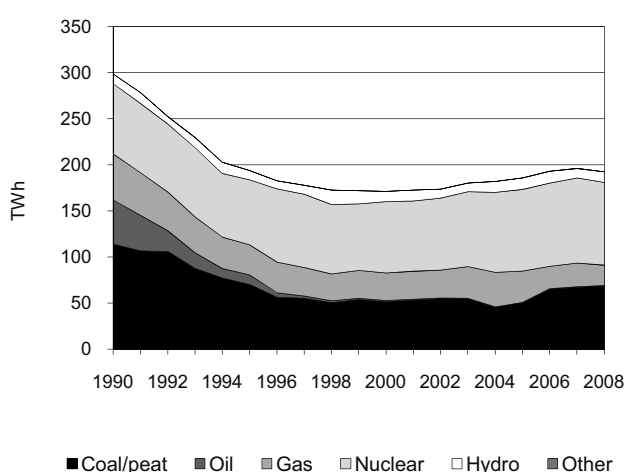
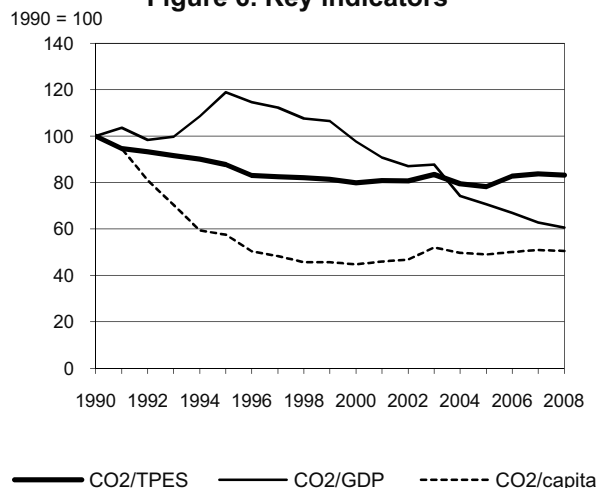
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Non-specified other - gas	15.31	-2.7%	18.5	18.5
Main activity prod. elec. and heat - gas	13.56	35.4%	16.4	34.9
Non-specified other - oil	8.69	-31.1%	10.5	45.5
Other energy industries - oil	3.77	105.7%	4.6	50.0
Other energy industries - gas	3.19	11.3%	3.9	53.9
Road - oil	2.77	14.6%	3.4	57.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	47.29	1.4%	57.2	57.2

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Ukraine

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Ukraine

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	687.86	392.78	291.96	305.67	310.46	314.19	309.58	-55.0%
CO ₂ Reference Approach (Mt of CO ₂)	699.10	428.82	325.75	335.36	325.72	324.68	323.83	-53.7%
TPES (PJ)	10 541	6 859	5 602	5 982	5 750	5 750	5 700	-45.9%
TPES (Mtoe)	251.76	163.81	133.79	142.89	137.33	137.34	136.14	-45.9%
GDP (billion 2000 USD)	71.95	34.54	31.26	45.23	48.53	52.37	53.47	-25.7%
GDP PPP (billion 2000 USD)	456.90	219.32	198.51	287.22	308.19	332.53	339.52	-25.7%
Population (millions)	51.89	51.51	49.18	47.11	46.79	46.51	46.26	-10.9%
CO ₂ / TPES (t CO ₂ per TJ)	65.3	57.3	52.1	51.1	54.0	54.6	54.3	-16.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	9.56	11.37	9.34	6.76	6.40	6.00	5.79	-39.4%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.51	1.79	1.47	1.06	1.01	0.94	0.91	-39.4%
CO ₂ / population (t CO ₂ per capita)	13.26	7.63	5.94	6.49	6.64	6.76	6.69	-49.5%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	144.76	39.71	125.11	-	309.58	-55.0%
Main activity producer elec. and heat	70.61	0.70	35.71	-	107.02	-64.1%
Unallocated autoproducers	8.88	-	15.99	-	24.87	-20.6%
Other energy industries	3.44	1.81	2.69	-	7.94	-67.6%
Manufacturing industries and construction	55.22	6.20	29.67	-	91.10	-54.4%
Transport	0.13	25.21	7.10	-	32.43	-40.3%
<i>of which: road</i>	-	23.90	0.13	-	24.03	-48.8%
Other	6.47	5.79	33.95	-	46.21	-42.4%
<i>of which: residential</i>	5.49	1.75	32.30	-	39.54	-22.7%
Reference Approach	155.83	40.84	127.16	-	323.83	-53.7%
Diff. due to losses and/or transformation	10.79	0.68	2.14	-	13.61	
Statistical differences	0.29	0.44	- 0.08	-	0.65	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.78	-	-	0.78	-87.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	70.61	-48.1%	14.2	14.2
Manufacturing industries - coal/peat	55.22	-47.6%	11.1	25.3
Main activity prod. elec. and heat - gas	35.71	-61.6%	7.2	32.4
Residential - gas	32.30	58.3%	6.5	38.9
Manufacturing industries - gas	29.67	-45.5%	6.0	44.9
Road - oil	23.90	-49.1%	4.8	49.7
Unallocated autoproducers - gas	15.99	-44.7%	3.2	52.9
Unallocated autoproducers - coal/peat	8.88	266.4%	1.8	54.7
Other transport - gas	6.96	x	1.4	56.1
Manufacturing industries - oil	6.20	-84.4%	1.2	57.3
Residential - coal/peat	5.49	-75.0%	1.1	58.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>309.58</i>	<i>-55.0%</i>	<i>62.2</i>	<i>62.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

United Arab Emirates

Figure 1. CO₂ emissions by fuel

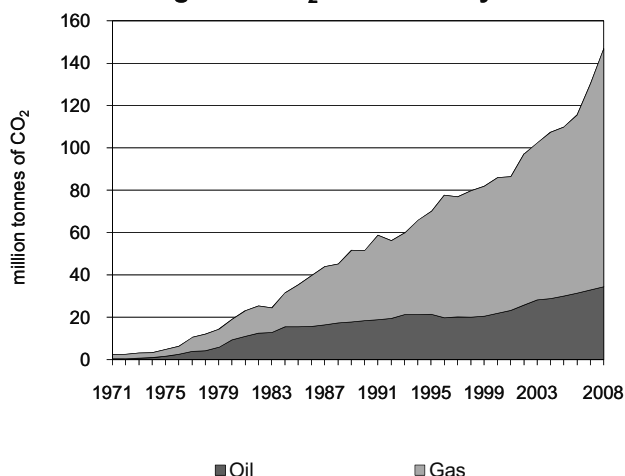


Figure 2. CO₂ emissions by sector

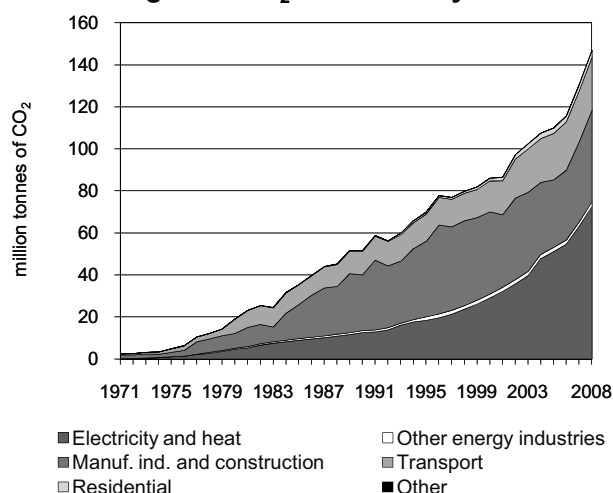


Figure 3. CO₂ emissions by sector

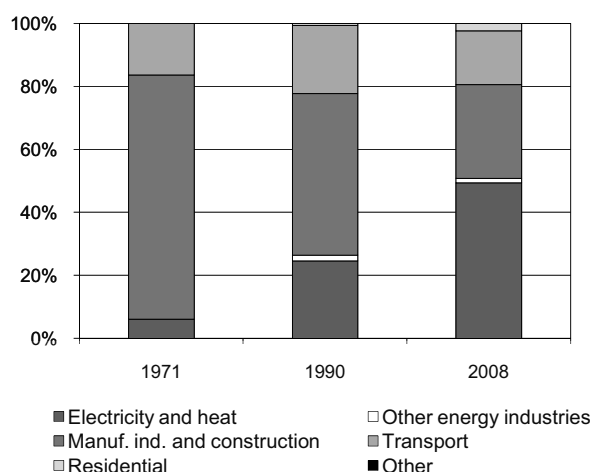


Figure 4. Reference vs Sectoral Approach

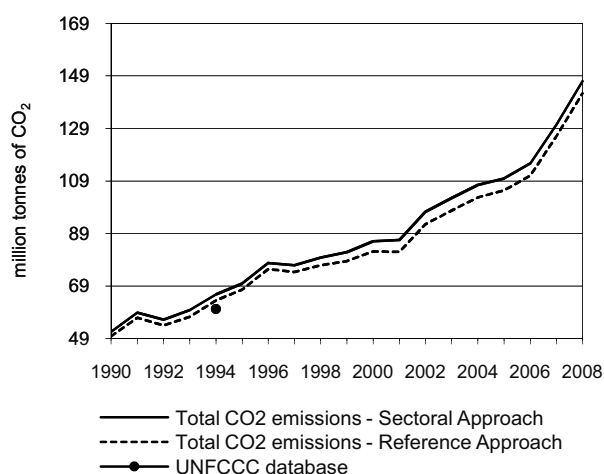


Figure 5. Electricity generation by fuel

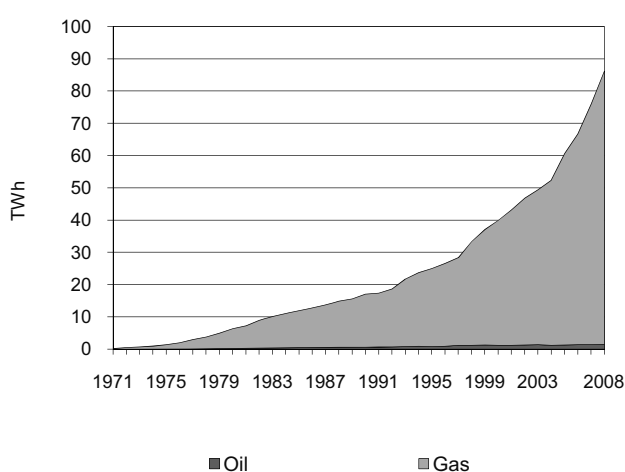
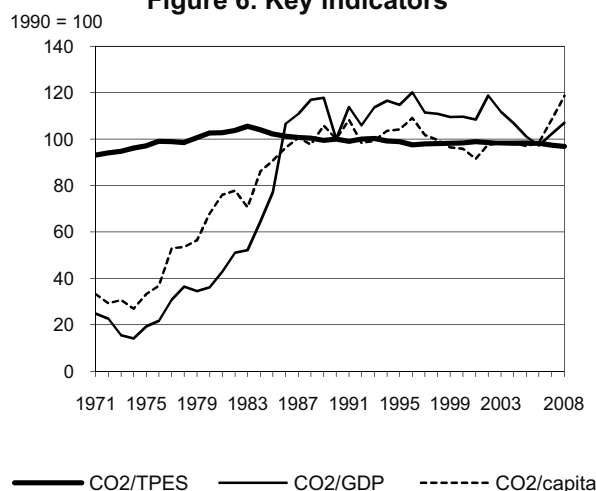


Figure 6. Key indicators



United Arab Emirates

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	51.61	69.97	86.06	109.97	115.70	130.58	146.95	184.7%
CO ₂ Reference Approach (Mt of CO ₂)	49.89	67.62	82.12	105.37	111.06	126.19	142.30	185.2%
TPES (PJ)	832	1 141	1 411	1 805	1 900	2 162	2 447	194.0%
TPES (Mtoe)	19.88	27.25	33.69	43.11	45.38	51.64	58.44	194.0%
GDP (billion 2000 USD)	46.40	54.82	70.59	97.83	107.03	114.93	123.44	166.1%
GDP PPP (billion 2000 USD)	45.84	54.16	69.74	96.65	105.74	113.54	121.96	166.1%
Population (millions)	1.87	2.43	3.25	4.10	4.25	4.37	4.48	140.2%
CO ₂ / TPES (t CO ₂ per TJ)	62.0	61.3	61.0	60.9	60.9	60.4	60.1	-3.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.11	1.28	1.22	1.12	1.08	1.14	1.19	7.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	1.13	1.29	1.23	1.14	1.09	1.15	1.20	7.0%
CO ₂ / population (t CO ₂ per capita)	27.64	28.77	26.50	26.80	27.24	29.91	32.77	18.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	34.49	112.46	-	146.95	184.7%
Main activity producer elec. and heat	-	1.75	70.88	-	72.64	472.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	-	0.50	1.53	-	2.03	121.3%
Manufacturing industries and construction	-	3.68	40.05	-	43.72	64.9%
Transport	-	25.15	-	-	25.15	125.1%
<i>of which: road</i>	-	25.15	-	-	25.15	125.1%
Other	-	3.40	-	-	3.40	+
<i>of which: residential</i>	-	3.40	-	-	3.40	+
Reference Approach	-	29.84	112.46	-	142.30	185.2%
Diff. due to losses and/or transformation	-	- 4.64	-	-	- 4.64	
Statistical differences	-	-	-	-	-	
<i>Memo: international marine bunkers</i>	-	48.46	-	-	48.46	155.2%
<i>Memo: international aviation bunkers</i>	-	12.27	-	-	12.27	25.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - gas	70.88	486.6%	39.2	39.2
Manufacturing industries - gas	40.05	96.2%	22.2	61.4
Road - oil	25.15	125.1%	13.9	75.3
Manufacturing industries - oil	3.68	-39.8%	2.0	77.4
Residential - oil	3.40	+	1.9	79.2
Main activity prod. elec. and heat - oil	1.75	184.9%	1.0	80.2
Other energy industries - gas	1.53	144.4%	0.8	81.1
Other energy industries - oil	0.50	71.7%	0.3	81.3
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>146.95</i>	<i>184.7%</i>	<i>81.3</i>	<i>81.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

United Kingdom

Figure 1. CO₂ emissions by fuel

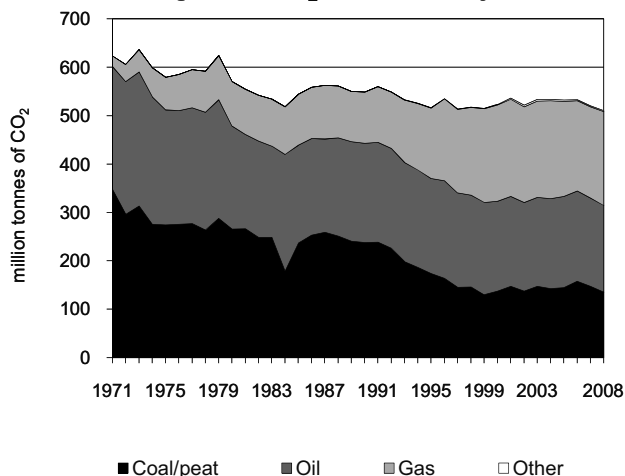


Figure 2. CO₂ emissions by sector

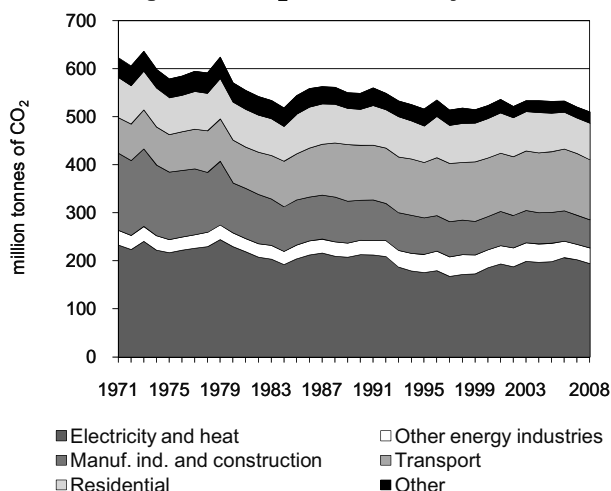


Figure 3. CO₂ emissions by sector

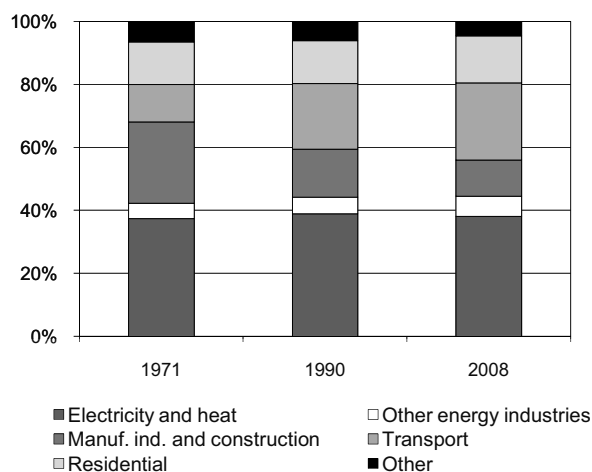


Figure 4. Reference vs Sectoral Approach

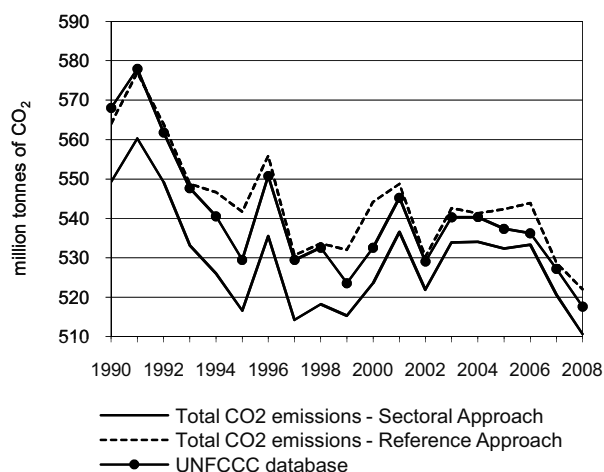


Figure 5. Electricity generation by fuel

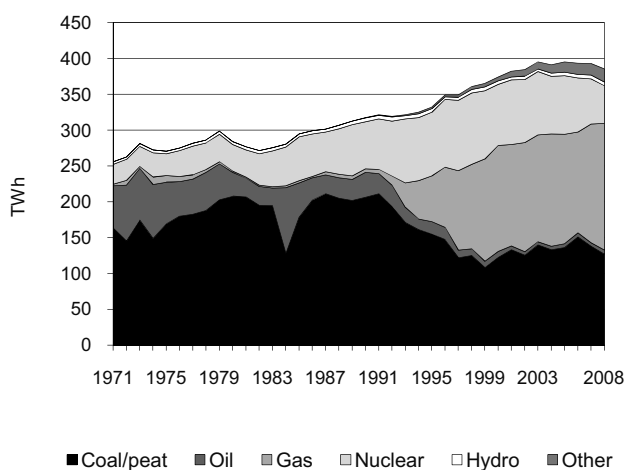
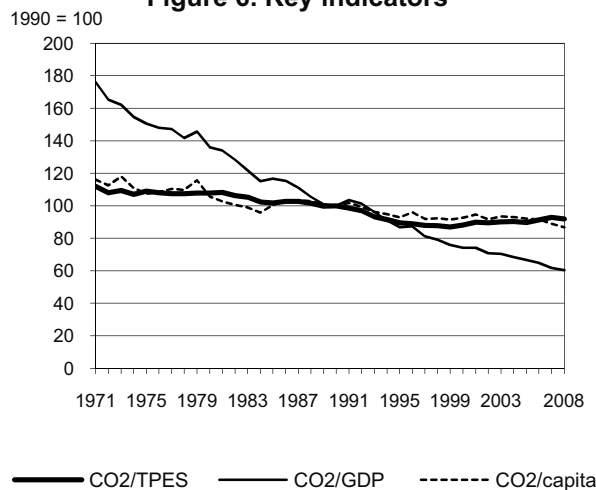


Figure 6. Key indicators



United Kingdom

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	549.25	516.60	523.59	532.34	533.30	520.55	510.63	-7.0%
CO ₂ Reference Approach (Mt of CO ₂)	564.00	541.68	544.23	542.34	543.92	528.70	522.06	-7.4%
TPES (PJ)	8 621	9 055	9 334	9 308	9 167	8 795	8 727	1.2%
TPES (Mtoe)	205.92	216.26	222.94	222.33	218.95	210.06	208.45	1.2%
GDP (billion 2000 USD)	1 150.27	1 247.82	1 477.51	1 671.47	1 719.15	1 763.15	1 772.81	54.1%
GDP PPP (billion 2000 USD)	1 195.36	1 296.73	1 535.42	1 736.98	1 786.54	1 832.26	1 842.30	54.1%
Population (millions)	57.24	58.03	58.89	60.24	60.59	60.98	61.35	7.2%
CO ₂ / TPES (t CO ₂ per TJ)	63.7	57.1	56.1	57.2	58.2	59.2	58.5	-8.2%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.48	0.41	0.35	0.32	0.31	0.30	0.29	-39.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.46	0.40	0.34	0.31	0.30	0.28	0.28	-39.7%
CO ₂ / population (t CO ₂ per capita)	9.60	8.90	8.89	8.84	8.80	8.54	8.32	-13.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	135.87	178.65	194.17	1.94	510.63	-7.0%
Main activity producer elec. and heat	106.64	1.13	57.95	-	165.72	-17.2%
Unallocated autoproducers	11.71	1.84	13.87	1.72	29.15	117.8%
Other energy industries	4.85	15.13	12.51	-	32.49	10.3%
Manufacturing industries and construction	10.14	23.41	25.08	0.14	58.78	-29.6%
Transport	-	124.80	-	-	124.80	9.1%
<i>of which: road</i>	-	114.93	-	-	114.93	7.8%
Other	2.52	12.34	84.76	0.08	99.70	-8.0%
<i>of which: residential</i>	2.45	8.30	65.69	0.02	76.46	2.1%
Reference Approach	138.75	184.56	196.80	1.94	522.06	-7.4%
Diff. due to losses and/or transformation	3.82	5.73	2.48	-	12.03	
Statistical differences	- 0.94	0.18	0.15	0.00	- 0.60	
<i>Memo: international marine bunkers</i>	-	7.99	-	-	7.99	1.9%
<i>Memo: international aviation bunkers</i>	-	34.63	-	-	34.63	83.6%

* Other includes industrial waste and non-renewable municipal waste.

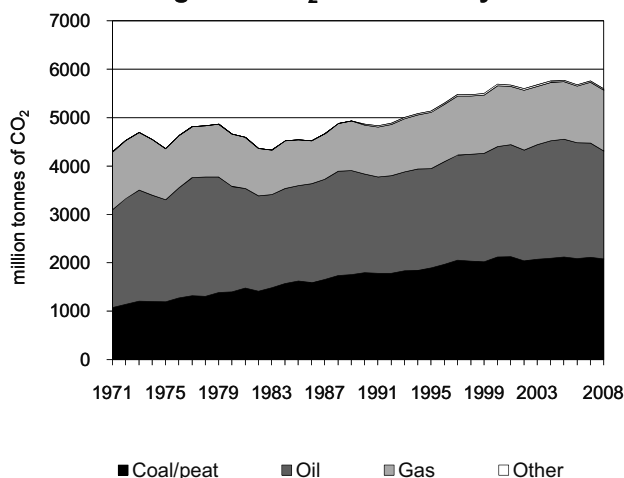
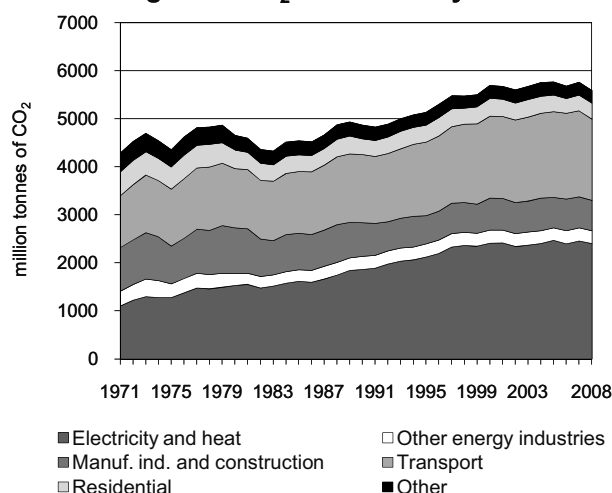
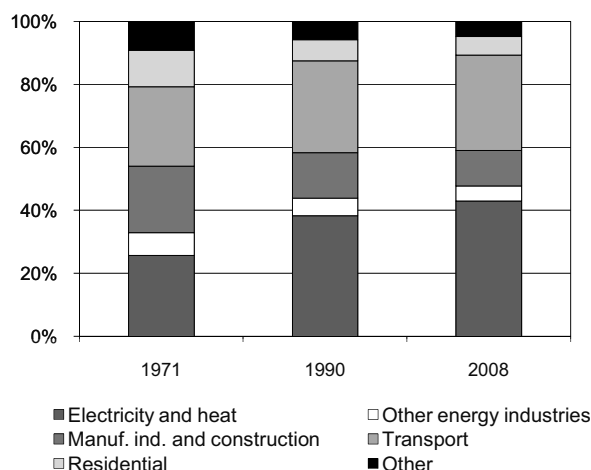
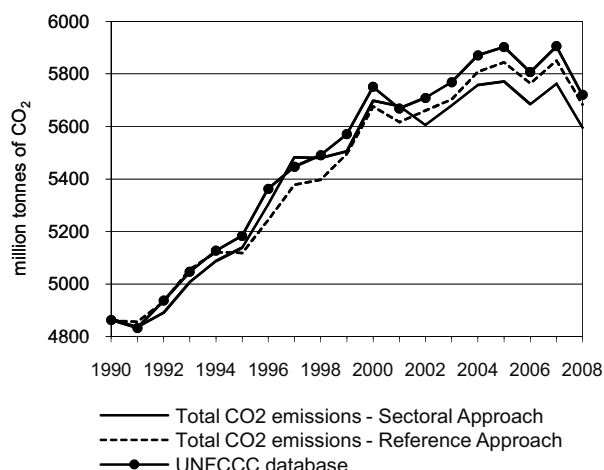
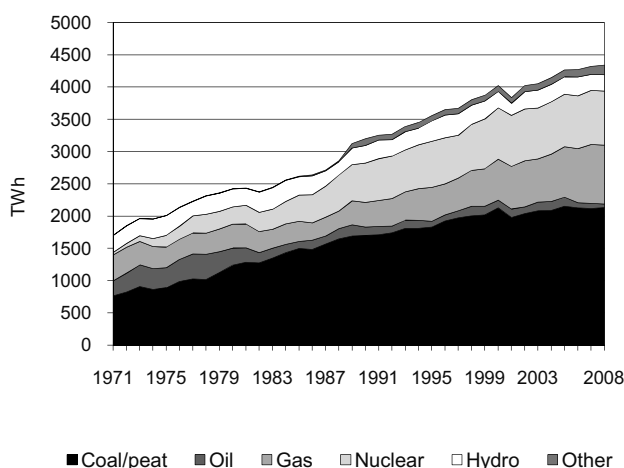
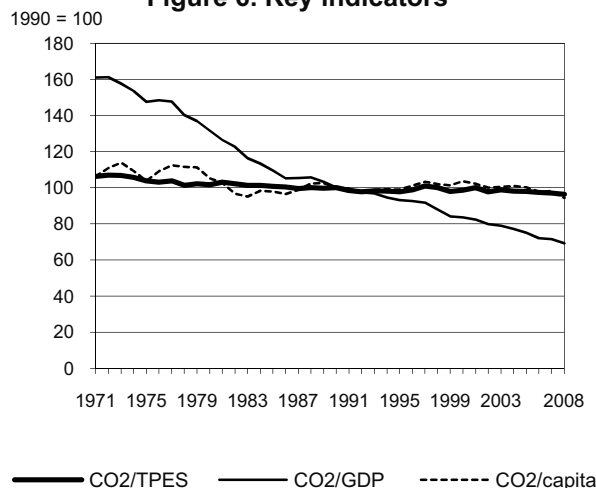
Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	114.93	7.8%	18.4	18.4
Main activity prod. elec. and heat - coal/peat	106.64	-40.8%	17.1	35.5
Residential - gas	65.69	20.9%	10.5	46.0
Main activity prod. elec. and heat - gas ***	57.95	x	9.3	55.3
Manufacturing industries - gas	25.08	-6.2%	4.0	59.3
Manufacturing industries - oil	23.41	-11.4%	3.7	63.0
Non-specified other - gas	19.07	24.0%	3.1	66.1
Other energy industries - oil	15.13	-24.3%	2.4	68.5
Unallocated autoproducers - gas ***	13.87	433.2%	2.2	70.7
Other energy industries - gas	12.51	78.7%	2.0	72.7
Unallocated autoproducers - coal/peat	11.71	53.1%	1.9	74.6
<i>Memo: total CO₂ from fuel combustion</i>	<i>510.63</i>	<i>-7.0%</i>	<i>81.7</i>	<i>81.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

*** For reasons of confidentiality, gas for main activity producer electricity is included in autoproducers for 1990.

United States

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


United States

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	4 868.7	5 138.7	5 698.1	5 771.7	5 684.9	5 762.7	5 595.9	14.9%
CO ₂ Reference Approach (Mt of CO ₂)	4 860.4	5 118.5	5 676.2	5 843.9	5 764.3	5 850.8	5 684.1	16.9%
TPES (PJ)	80 177	86 550	95 180	97 086	96 156	97 827	95 615	19.3%
TPES (Mtoe)	1 915.0	2 067.2	2 273.3	2 318.9	2 296.6	2 336.5	2 283.7	19.3%
GDP (billion 2000 USD)	7 064.0	8 002.0	9 898.8	11 150.4	11 448.5	11 693.2	11 742.3	66.2%
GDP PPP (billion 2000 USD)	7 064.0	8 002.0	9 898.8	11 150.4	11 448.5	11 693.2	11 742.3	66.2%
Population (millions)	250.2	266.6	282.4	296.0	298.8	301.7	304.5	21.7%
CO ₂ / TPES (t CO ₂ per TJ)	60.7	59.4	59.9	59.4	59.1	58.9	58.5	-3.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.69	0.64	0.58	0.52	0.50	0.49	0.48	-30.8%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.69	0.64	0.58	0.52	0.50	0.49	0.48	-30.8%
CO ₂ / population (t CO ₂ per capita)	19.46	19.28	20.18	19.50	19.02	19.10	18.38	-5.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	2 085.7	2 227.3	1 257.5	25.4	5 595.9	14.9%
Main activity producer elec. and heat	1 928.8	38.9	362.9	13.7	2 344.4	32.2%
Unallocated autoproducers	17.6	6.2	30.3	4.9	59.0	-36.0%
Other energy industries	12.7	150.4	105.3	-	268.3	-1.7%
Manufacturing industries and construction	119.9	219.3	288.2	5.7	633.1	-9.9%
Transport	-	1 654.8	36.8	-	1 691.6	19.1%
<i>of which: road</i>	-	1 454.3	1.5	-	1 455.9	28.0%
Other	6.7	157.8	434.0	1.0	599.5	-1.2%
<i>of which: residential</i>	-	67.5	265.1	-	332.7	2.7%
Reference Approach	2 136.3	2 260.6	1 261.7	25.4	5 684.1	16.9%
Diff. due to losses and/or transformation	17.0	- 19.3	- 2.6	-	- 4.9	
Statistical differences	33.6	52.6	6.9	-	93.1	
<i>Memo: international marine bunkers</i>	-	71.9	-	-	71.9	-20.7%
<i>Memo: international aviation bunkers</i>	-	70.6	-	-	70.6	81.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	1 928.8	25.8%	28.4	28.4
Road - oil	1 454.3	27.8%	21.4	49.7
Main activity prod. elec. and heat - gas	362.9	137.7%	5.3	55.1
Manufacturing industries - gas	288.2	3.5%	4.2	59.3
Residential - gas	265.1	10.6%	3.9	63.2
Manufacturing industries - oil	219.3	1.0%	3.2	66.4
Other transport - oil	200.4	-18.6%	2.9	69.4
Non-specified other - gas	168.8	17.9%	2.5	71.9
Other energy industries - oil	150.4	-9.5%	2.2	74.1
Manufacturing industries - coal/peat	119.9	-42.1%	1.8	75.9
Other energy industries - gas	105.3	1.0%	1.5	77.4
<i>Memo: total CO₂ from fuel combustion</i>	<i>5 595.9</i>	<i>14.9%</i>	<i>82.3</i>	<i>82.3</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Uruguay

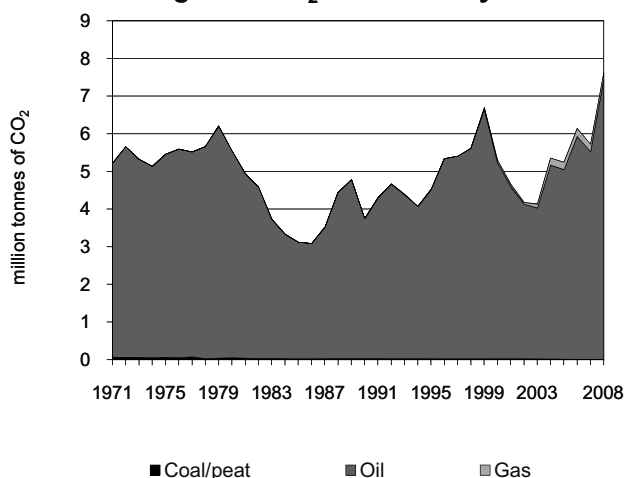
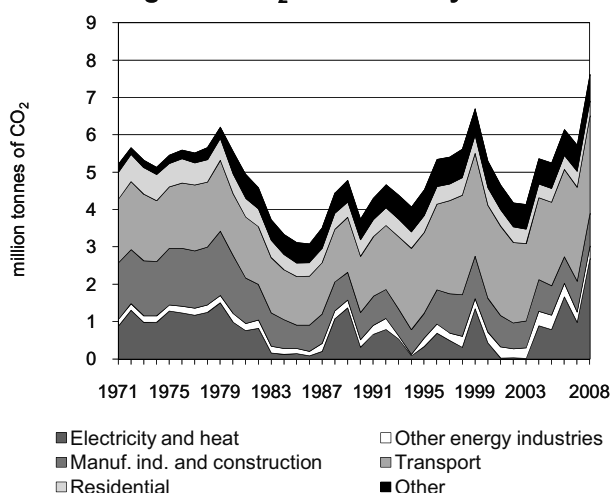
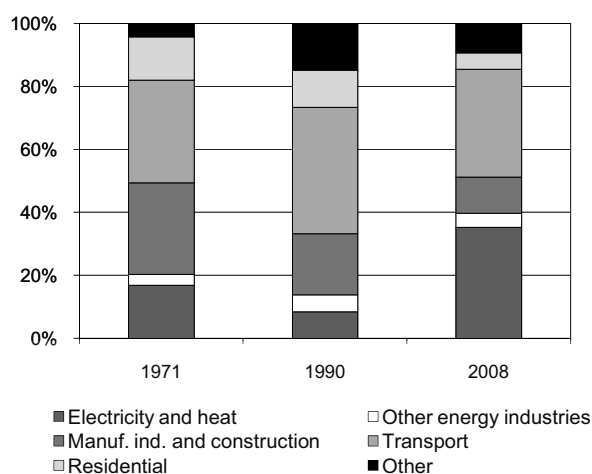
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

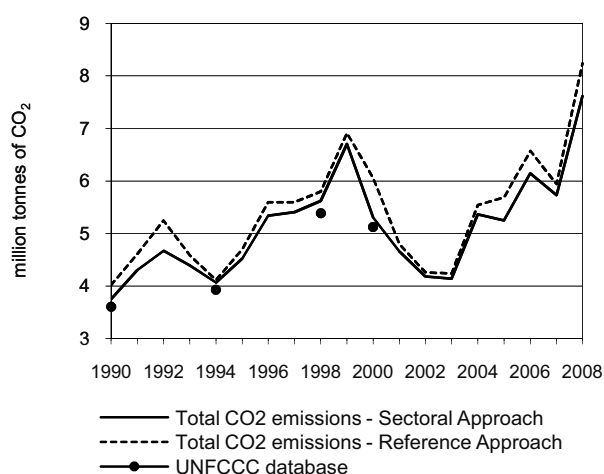


Figure 5. Electricity generation by fuel

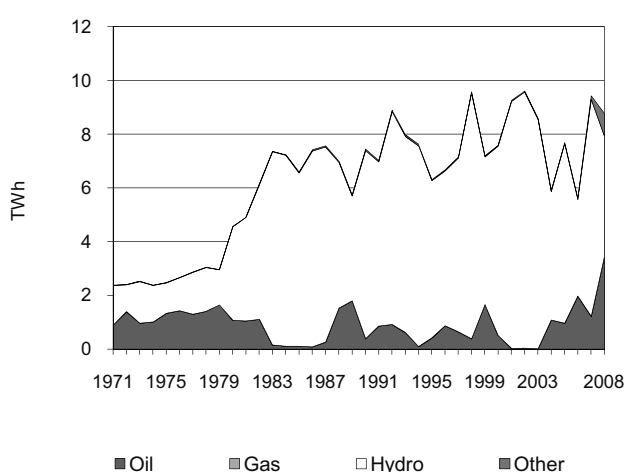
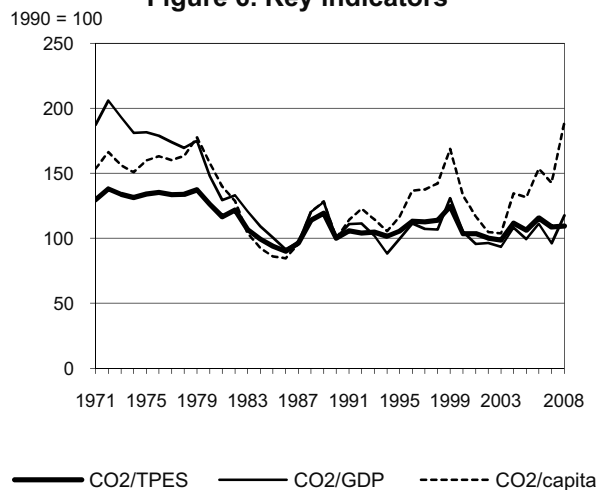


Figure 6. Key indicators



Uruguay

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	3.75	4.52	5.30	5.25	6.14	5.73	7.62	103.2%
CO ₂ Reference Approach (Mt of CO ₂)	4.02	4.70	6.06	5.69	6.57	5.94	8.24	105.2%
TPES (PJ)	94	108	129	124	134	133	175	85.7%
TPES (Mtoe)	2.25	2.57	3.08	2.97	3.19	3.17	4.18	85.7%
GDP (billion 2000 USD)	16.95	20.56	22.82	23.90	25.01	26.91	29.30	72.9%
GDP PPP (billion 2000 USD)	24.00	29.11	32.32	33.84	35.41	38.10	41.49	72.9%
Population (millions)	3.11	3.22	3.30	3.31	3.31	3.32	3.33	7.3%
CO ₂ / TPES (t CO ₂ per TJ)	39.8	42.0	41.2	42.2	46.0	43.2	43.5	9.4%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.22	0.22	0.23	0.22	0.25	0.21	0.26	17.6%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.16	0.16	0.16	0.16	0.17	0.15	0.18	17.6%
CO ₂ / population (t CO ₂ per capita)	1.21	1.41	1.61	1.59	1.85	1.72	2.29	89.3%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.00	7.44	0.17	-	7.62	103.2%
Main activity producer elec. and heat	-	2.66	0.00	-	2.66	798.5%
Unallocated autoproducers	-	0.03	0.00	-	0.03	45.0%
Other energy industries	-	0.32	0.02	-	0.34	69.7%
Manufacturing industries and construction	0.00	0.78	0.08	-	0.87	19.5%
Transport	-	2.61	-	-	2.61	73.8%
<i>of which: road</i>	-	2.60	-	-	2.60	82.0%
Other	-	1.04	0.07	-	1.11	10.8%
<i>of which: residential</i>	-	0.36	0.04	-	0.39	-11.7%
Reference Approach	0.00	8.04	0.19	-	8.24	105.2%
Diff. due to losses and/or transformation	-	0.56	0.02	-	0.58	
Statistical differences	-	0.04	0.00	-	0.04	
<i>Memo: international marine bunkers</i>	-	1.36	-	-	1.36	268.7%
<i>Memo: international aviation bunkers</i>	-	0.19	-	-	0.19	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - oil	2.66	797.5%	7.2	7.2
Road - oil	2.60	82.0%	7.1	14.3
Manufacturing industries - oil	0.78	8.1%	2.1	16.4
Non-specified other - oil	0.68	24.2%	1.9	18.3
Residential - oil	0.36	-17.4%	1.0	19.2
Other energy industries - oil	0.32	60.5%	0.9	20.1
Manufacturing industries - gas	0.08	x	0.2	20.3
Residential - gas	0.04	x	0.1	20.4
Non-specified other - gas	0.03	x	0.1	20.5
Unallocated autoproducers - oil	0.03	42.9%	0.1	20.6
Other energy industries - gas	0.02	x	0.0	20.7
<i>Memo: total CO₂ from fuel combustion</i>	<i>7.62</i>	<i>103.2%</i>	<i>20.7</i>	<i>20.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Uzbekistan

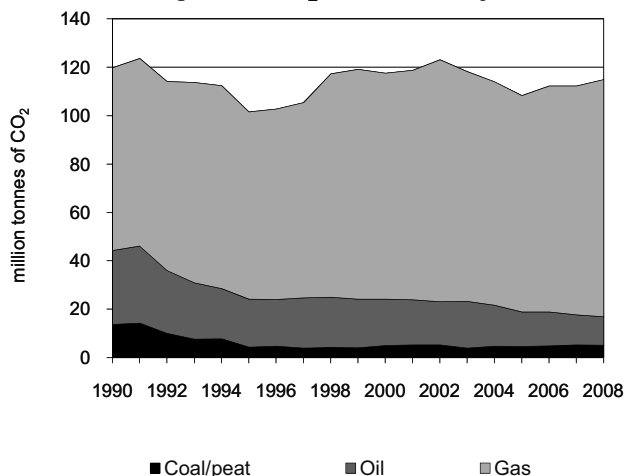
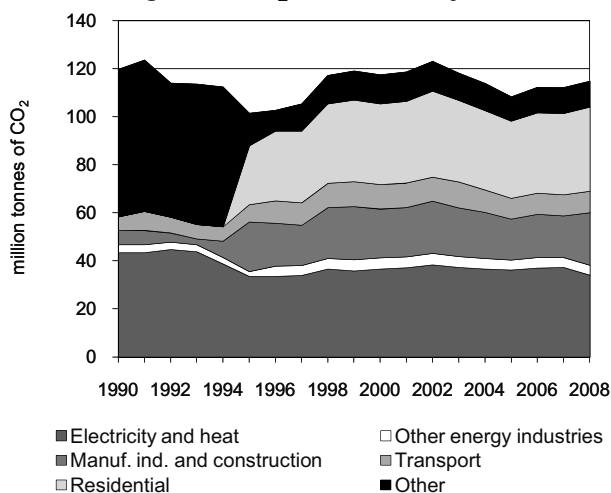
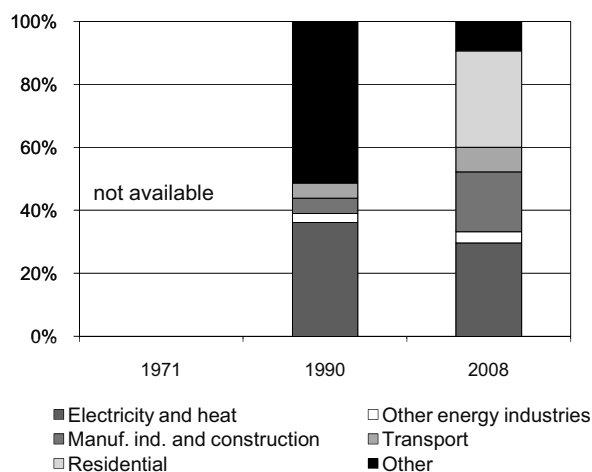
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

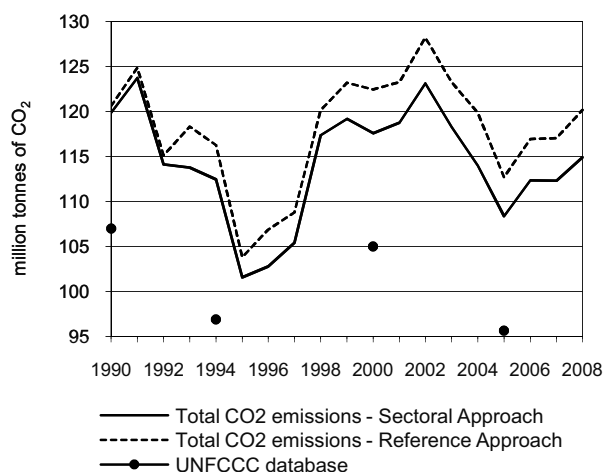


Figure 5. Electricity generation by fuel

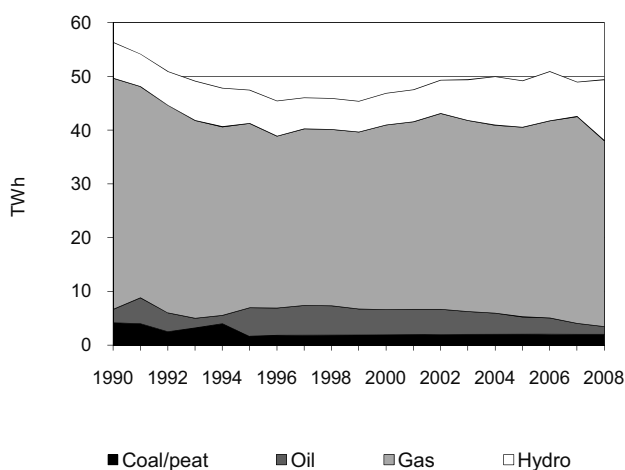
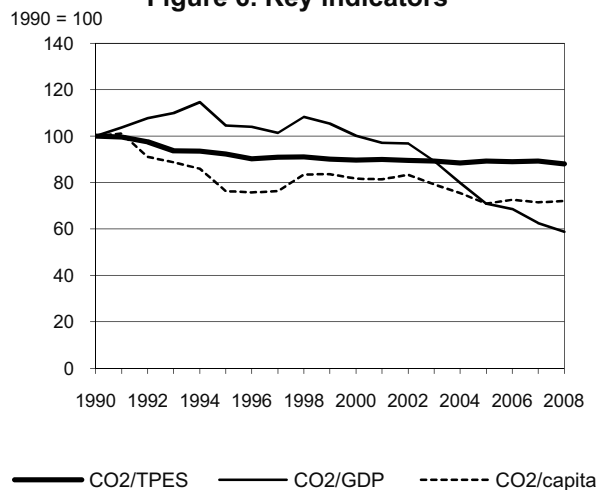


Figure 6. Key indicators



Uzbekistan

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	119.83	101.59	117.58	108.37	112.33	112.29	114.92	-4.1%
CO ₂ Reference Approach (Mt of CO ₂)	120.58	103.83	122.44	112.72	116.95	117.05	120.15	-0.4%
TPES (PJ)	1 941	1 782	2 124	1 966	2 045	2 039	2 114	8.9%
TPES (Mtoe)	46.37	42.57	50.74	46.95	48.85	48.70	50.50	8.9%
GDP (billion 2000 USD)	14.04	11.39	13.76	17.91	19.21	21.04	22.93	63.3%
GDP PPP (billion 2000 USD)	37.68	30.56	36.92	48.04	51.55	56.45	61.53	63.3%
Population (millions)	20.51	22.79	24.65	26.17	26.49	26.87	27.31	33.2%
CO ₂ / TPES (t CO ₂ per TJ)	61.7	57.0	55.3	55.1	54.9	55.1	54.4	-12.0%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	8.53	8.92	8.54	6.05	5.85	5.34	5.01	-41.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	3.18	3.32	3.18	2.26	2.18	1.99	1.87	-41.3%
CO ₂ / population (t CO ₂ per capita)	5.84	4.46	4.77	4.14	4.24	4.18	4.21	-28.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	5.12	11.86	97.94	-	114.92	-4.1%
Main activity producer elec. and heat	3.66	1.46	28.90	-	34.01	-21.7%
Unallocated autoproducers	-	0.01	0.06	-	0.07	x
Other energy industries	-	0.52	3.64	-	4.16	22.3%
Manufacturing industries and construction	0.58	1.69	19.59	-	21.85	274.1%
Transport	-	5.59	3.40	-	8.99	58.7%
<i>of which: road</i>	-	4.77	0.15	-	4.92	-9.4%
Other	0.89	2.60	42.36	-	45.84	-25.5%
<i>of which: residential</i>	0.06	0.05	34.99	-	35.10	x
Reference Approach	5.17	13.15	101.83	-	120.15	-0.4%
Diff. due to losses and/or transformation	0.05	1.11	3.89	-	5.05	
Statistical differences	-	0.18	- 0.00	-	0.18	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	-	-	-	-	-

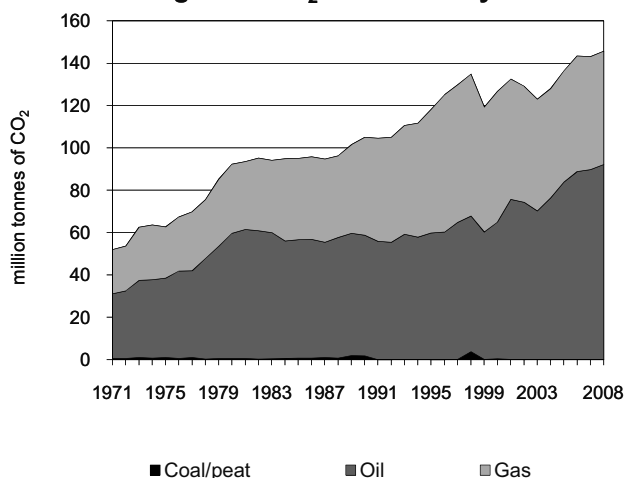
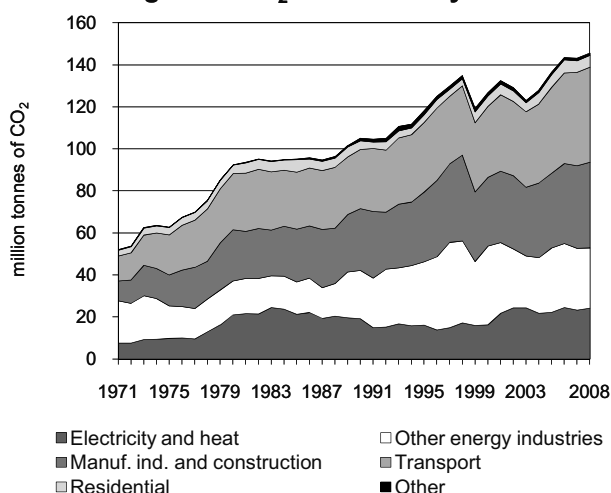
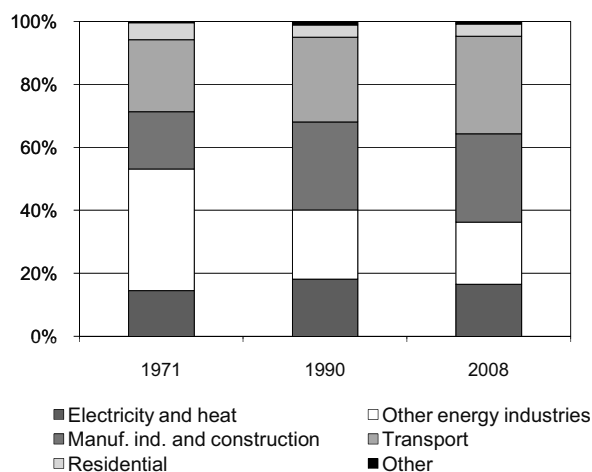
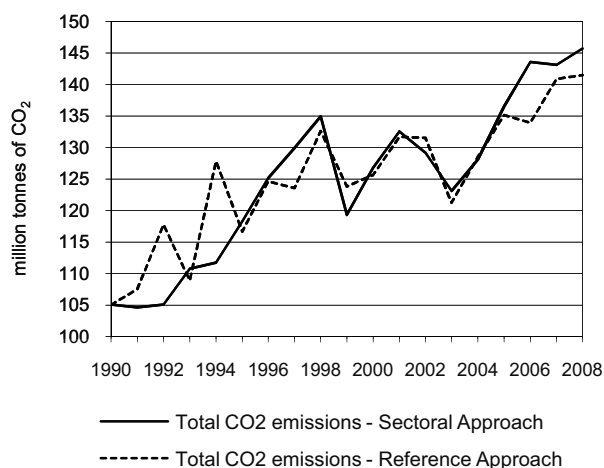
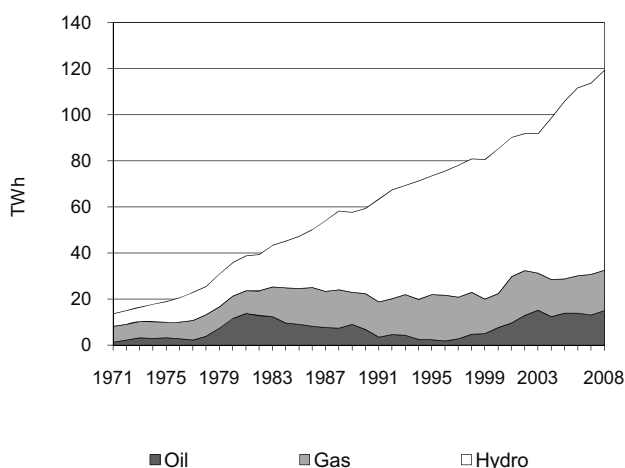
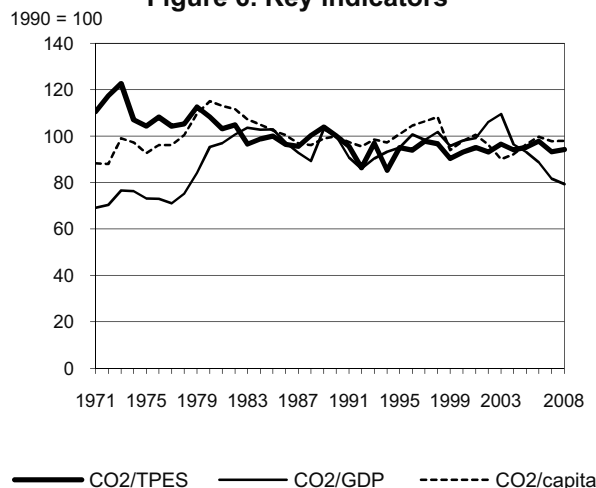
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Residential - gas	34.99	x	20.3	20.3
Main activity prod. elec. and heat - gas	28.90	6.5%	16.8	37.1
Manufacturing industries - gas	19.59	x	11.4	48.5
Non-specified other - gas	7.37	-84.0%	4.3	52.8
Road - oil	4.77	-12.2%	2.8	55.6
Main activity prod. elec. and heat - coal/peat	3.66	-58.4%	2.1	57.7
Other energy industries - gas	3.64	50.5%	2.1	59.8
Other transport - gas	3.25	x	1.9	61.7
Non-specified other - oil	2.55	-75.9%	1.5	63.2
Manufacturing industries - oil	1.69	-71.1%	1.0	64.2
Main activity prod. elec. and heat - oil	1.46	-80.5%	0.8	65.0
<i>Memo: total CO₂ from fuel combustion</i>	<i>114.92</i>	<i>-4.1%</i>	<i>66.8</i>	<i>66.8</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Venezuela

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Venezuela

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	105.10	118.29	126.74	136.49	143.54	143.13	145.71	38.6%
CO ₂ Reference Approach (Mt of CO ₂)	105.03	116.68	125.66	135.16	133.92	140.87	141.46	34.7%
TPES (PJ)	1 824	2 160	2 362	2 490	2 547	2 663	2 684	47.1%
TPES (Mtoe)	43.57	51.60	56.41	59.47	60.84	63.60	64.10	47.1%
GDP (billion 2000 USD)	95.26	112.85	117.15	132.89	146.64	158.96	166.62	74.9%
GDP PPP (billion 2000 USD)	113.85	134.86	140.00	158.81	175.24	189.96	199.12	74.9%
Population (millions)	19.75	22.04	24.31	26.58	27.03	27.48	27.94	41.5%
CO ₂ / TPES (t CO ₂ per TJ)	57.6	54.8	53.7	54.8	56.3	53.7	54.3	-5.8%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.10	1.05	1.08	1.03	0.98	0.90	0.87	-20.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.92	0.88	0.91	0.86	0.82	0.75	0.73	-20.7%
CO ₂ / population (t CO ₂ per capita)	5.32	5.37	5.21	5.14	5.31	5.21	5.21	-2.0%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.14	92.11	53.46	-	145.71	38.6%
Main activity producer elec. and heat	-	13.23	10.29	-	23.51	54.3%
Unallocated autoproducers	-	-	0.65	-	0.65	-83.4%
Other energy industries	-	15.51	13.26	-	28.77	25.0%
Manufacturing industries and construction	0.14	14.28	26.34	-	40.76	38.7%
Transport	-	44.93	0.27	-	45.20	59.9%
<i>of which: road</i>	-	44.89	-	-	44.89	59.0%
Other	-	4.16	2.65	-	6.81	29.1%
<i>of which: residential</i>	-	3.61	2.04	-	5.66	36.6%
Reference Approach	0.14	87.65	53.67	-	141.46	34.7%
Diff. due to losses and/or transformation	-	- 0.72	-	-	- 0.72	
Statistical differences	0.00	- 3.74	0.21	-	- 3.53	
<i>Memo: international marine bunkers</i>	-	2.89	-	-	2.89	15.8%
<i>Memo: international aviation bunkers</i>	-	0.46	-	-	0.46	-54.8%

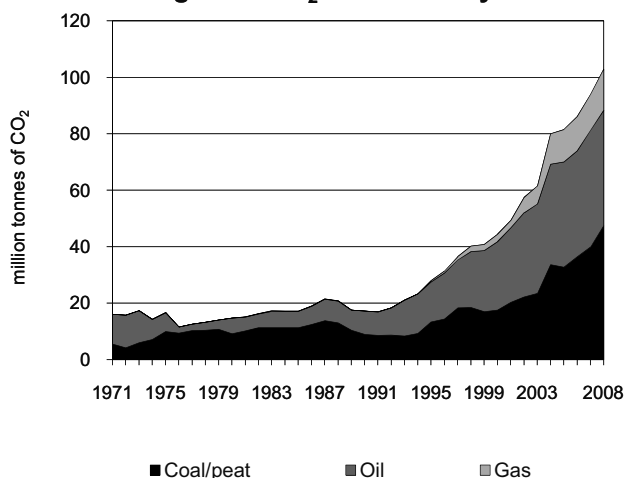
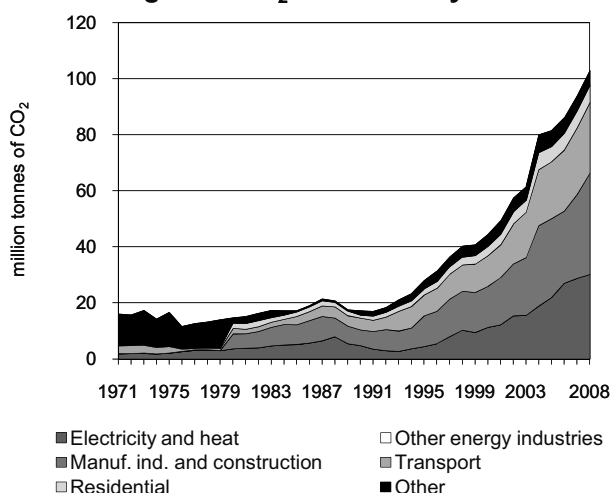
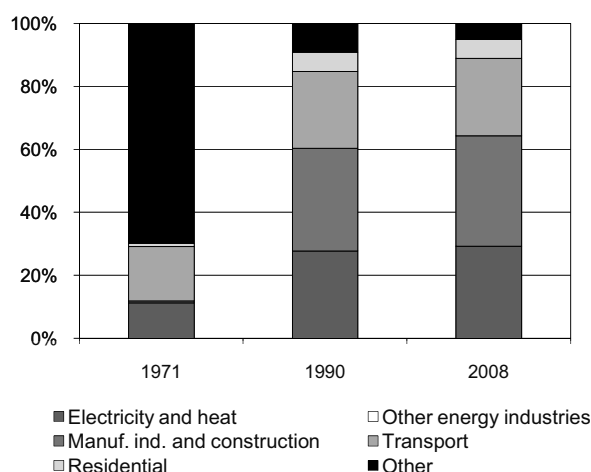
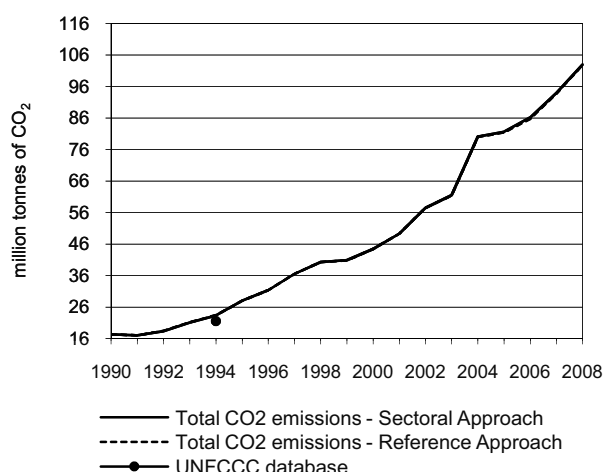
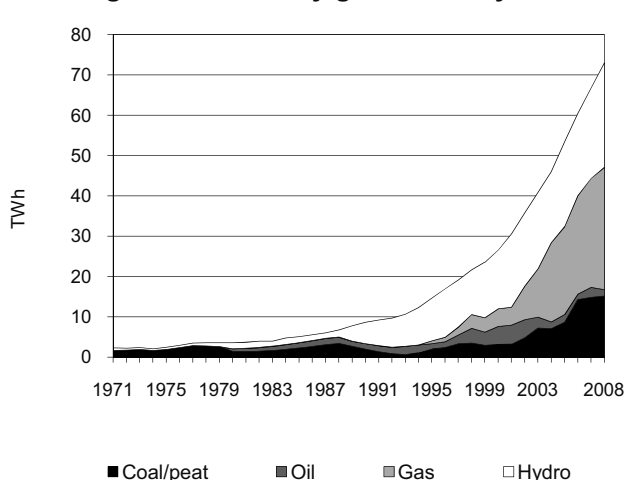
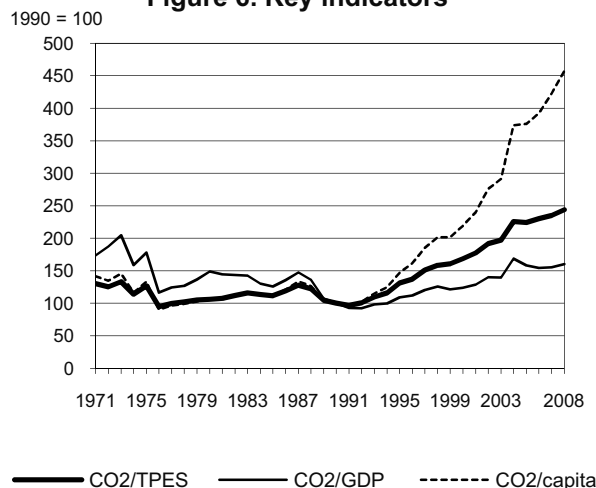
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	44.89	59.0%	18.9	18.9
Manufacturing industries - gas	26.34	45.7%	11.1	29.9
Other energy industries - oil	15.51	68.1%	6.5	36.5
Manufacturing industries - oil	14.28	50.2%	6.0	42.5
Other energy industries - gas	13.26	-3.9%	5.6	48.0
Main activity prod. elec. and heat - oil	13.23	133.8%	5.6	53.6
Main activity prod. elec. and heat - gas	10.29	7.4%	4.3	57.9
Residential - oil	3.61	-2.4%	1.5	59.4
Residential - gas	2.04	365.5%	0.9	60.3
Unallocated autoproducers - gas	0.65	-81.2%	0.3	60.6
Non-specified other - gas	0.61	-37.3%	0.3	60.8
<i>Memo: total CO₂ from fuel combustion</i>	<i>145.71</i>	<i>38.6%</i>	<i>61.2</i>	<i>61.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Vietnam *

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


* A detailed sectoral breakdown is available starting in 1980.

Vietnam

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	17.29	28.01	44.47	81.57	86.14	93.95	102.96	495.7%
CO ₂ Reference Approach (Mt of CO ₂)	17.29	28.02	44.42	81.43	85.81	93.82	102.82	494.7%
TPES (PJ)	1 018	1 258	1 552	2 143	2 207	2 356	2 488	144.3%
TPES (Mtoe)	24.32	30.05	37.07	51.19	52.71	56.27	59.42	144.3%
GDP (billion 2000 USD)	15.02	22.28	31.17	44.77	48.45	52.56	55.79	271.5%
GDP PPP (billion 2000 USD)	76.30	113.18	158.37	227.45	246.17	267.04	283.45	271.5%
Population (millions)	66.20	72.98	77.64	83.11	84.14	85.16	86.21	30.2%
CO ₂ / TPES (t CO ₂ per TJ)	17.0	22.3	28.7	38.1	39.0	39.9	41.4	143.9%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.15	1.26	1.43	1.82	1.78	1.79	1.85	60.3%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.23	0.25	0.28	0.36	0.35	0.35	0.36	60.4%
CO ₂ / population (t CO ₂ per capita)	0.26	0.38	0.57	0.98	1.02	1.10	1.19	357.4%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	47.45	40.94	14.56	-	102.96	495.7%
Main activity producer elec. and heat	13.50	0.72	12.74	-	26.96	462.5%
Unallocated autoproducers	1.49	1.16	0.56	-	3.21	x
Other energy industries	-	-	-	-	-	-
Manufacturing industries and construction	26.66	8.17	1.26	-	36.10	539.8%
Transport	-	25.26	-	-	25.26	500.1%
<i>of which: road</i>	-	23.22	-	-	23.22	519.7%
Other	5.80	5.63	-	-	11.44	332.9%
<i>of which: residential</i>	4.31	1.90	-	-	6.21	484.0%
Reference Approach	47.45	40.80	14.56	-	102.82	494.7%
Diff. due to losses and/or transformation	-	- 0.14	-	-	- 0.14	
Statistical differences	0.00	0.00	0.00	-	0.00	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.87	-	-	0.87	x

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - coal/peat	26.66	542.3%	11.3	11.3
Road - oil	23.22	519.7%	9.9	21.2
Main activity prod. elec. and heat - coal/peat	13.50	277.0%	5.7	26.9
Main activity prod. elec. and heat - gas	12.74	+	5.4	32.3
Manufacturing industries - oil	8.17	448.2%	3.5	35.8
Residential - coal/peat	4.31	416.2%	1.8	37.6
Non-specified other - oil	3.73	200.8%	1.6	39.2
Other transport - oil	2.03	402.7%	0.9	40.1
Residential - oil	1.90	732.0%	0.8	40.9
Non-specified other sectors - coal/peat	1.49	343.0%	0.6	41.5
Unallocated autoproducers - coal/peat	1.49	x	0.6	42.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>102.96</i>	<i>495.7%</i>	<i>43.7</i>	<i>43.7</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Yemen

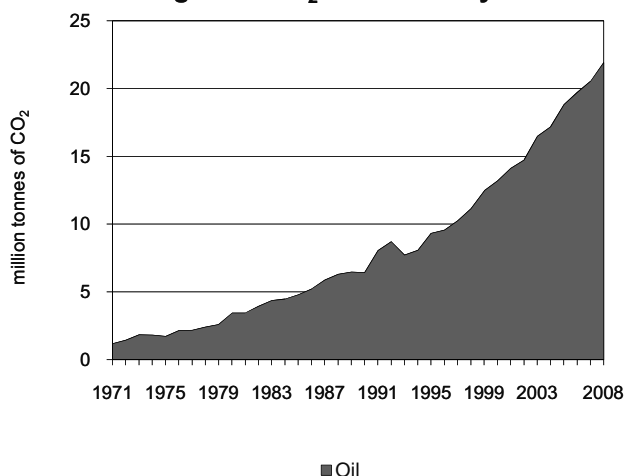
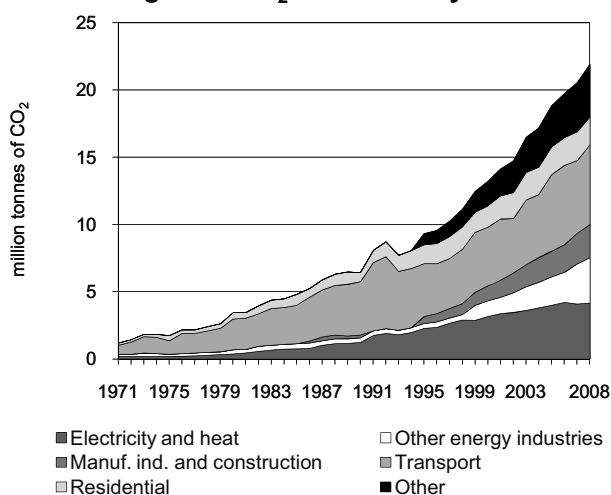
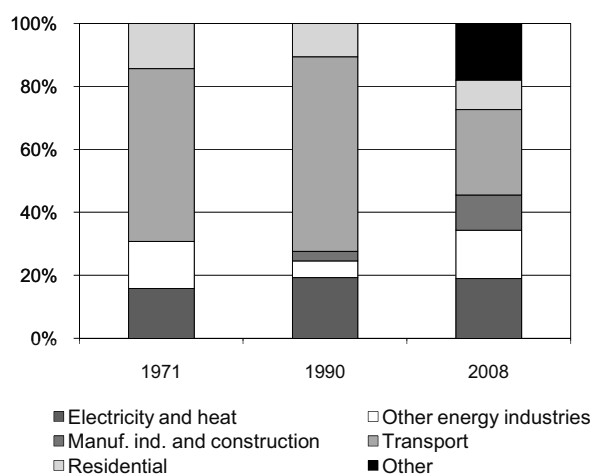
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

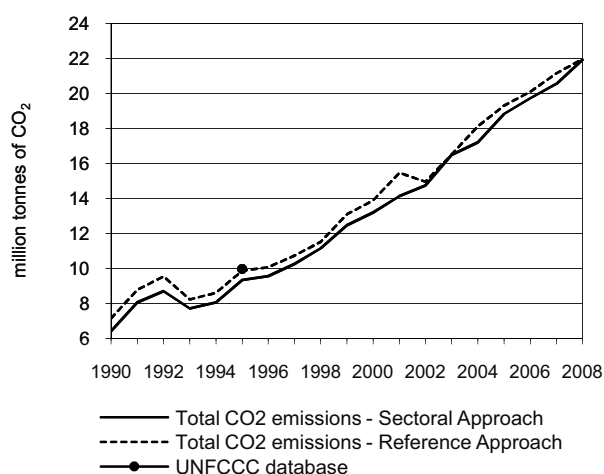


Figure 5. Electricity generation by fuel

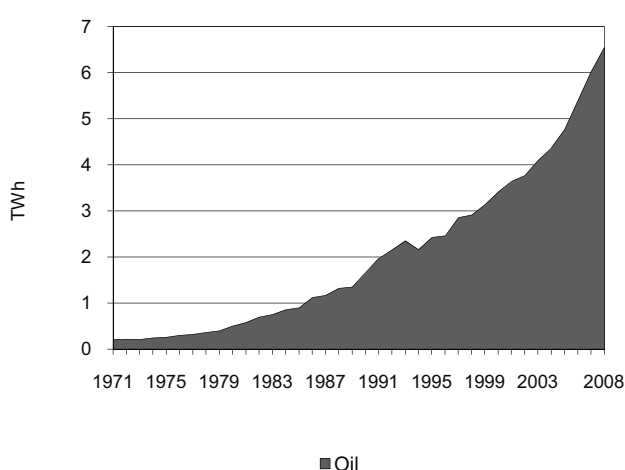
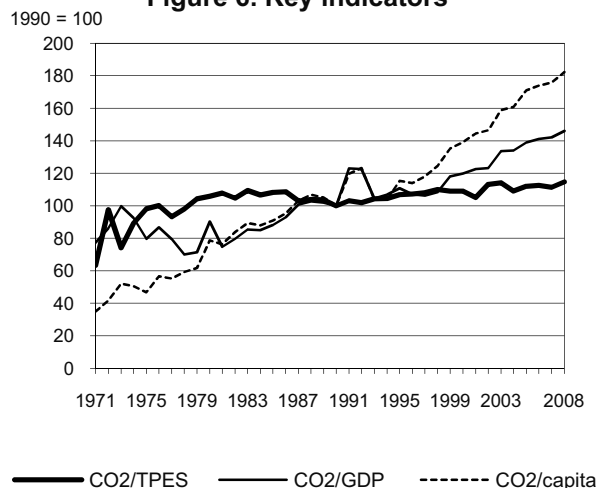


Figure 6. Key indicators



Yemen

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	6.43	9.34	13.21	18.83	19.73	20.55	21.93	241.0%
CO ₂ Reference Approach (Mt of CO ₂)	7.14	9.87	13.90	19.31	20.10	21.15	21.96	207.4%
TPES (PJ)	105	143	198	275	287	302	313	197.5%
TPES (Mtoe)	2.51	3.42	4.74	6.58	6.86	7.21	7.48	197.5%
GDP (billion 2000 USD)	5.51	7.22	9.44	11.61	11.99	12.38	12.86	133.6%
GDP PPP (billion 2000 USD)	8.60	11.28	14.74	18.14	18.72	19.33	20.09	133.6%
Population (millions)	12.31	15.52	18.18	21.10	21.73	22.38	23.05	87.2%
CO ₂ / TPES (t CO ₂ per TJ)	61.1	65.3	66.6	68.4	68.7	68.1	70.0	14.6%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	1.17	1.29	1.40	1.62	1.65	1.66	1.70	46.0%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.75	0.83	0.90	1.04	1.05	1.06	1.09	46.0%
CO ₂ / population (t CO ₂ per capita)	0.52	0.60	0.73	0.89	0.91	0.92	0.95	82.2%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	-	21.93	-	-	21.93	241.0%
Main activity producer elec. and heat	-	3.78	-	-	3.78	311.7%
Unallocated autoproducers	-	0.38	-	-	0.38	18.3%
Other energy industries	-	3.37	-	-	3.37	894.6%
Manufacturing industries and construction	-	2.46	-	-	2.46	+
Transport	-	5.95	-	-	5.95	49.7%
<i>of which: road</i>	-	5.95	-	-	5.95	49.7%
Other	-	5.99	-	-	5.99	781.0%
<i>of which: residential</i>	-	2.05	-	-	2.05	201.6%
Reference Approach	-	21.96	-	-	21.96	207.4%
Diff. due to losses and/or transformation	-	0.41	-	-	0.41	
Statistical differences	-	- 0.38	-	-	- 0.38	
<i>Memo: international marine bunkers</i>	-	0.39	-	-	0.39	-68.2%
<i>Memo: international aviation bunkers</i>	-	0.36	-	-	0.36	107.3%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Road - oil	5.95	49.7%	17.7	17.7
Non-specified other - oil	3.94	x	11.7	29.4
Main activity prod. elec. and heat - oil	3.78	311.7%	11.3	40.6
Other energy industries - oil	3.37	894.6%	10.0	50.7
Manufacturing industries - oil	2.46	+	7.3	58.0
Residential - oil	2.05	201.6%	6.1	64.1
Unallocated autoproducers - oil	0.38	18.3%	1.1	65.2
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>21.93</i>	<i>241.0%</i>	<i>65.2</i>	<i>65.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Zambia

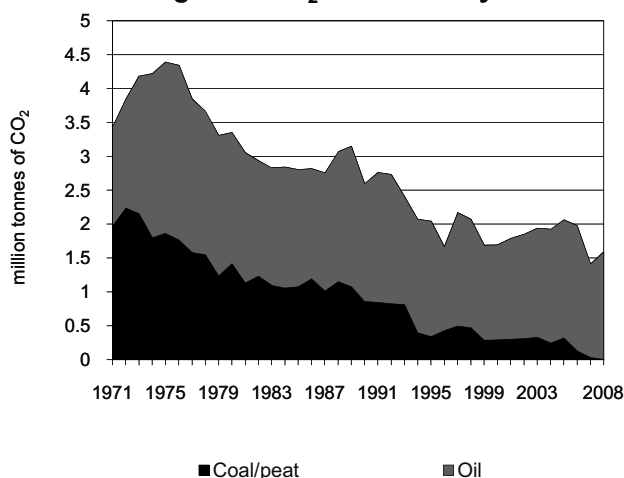
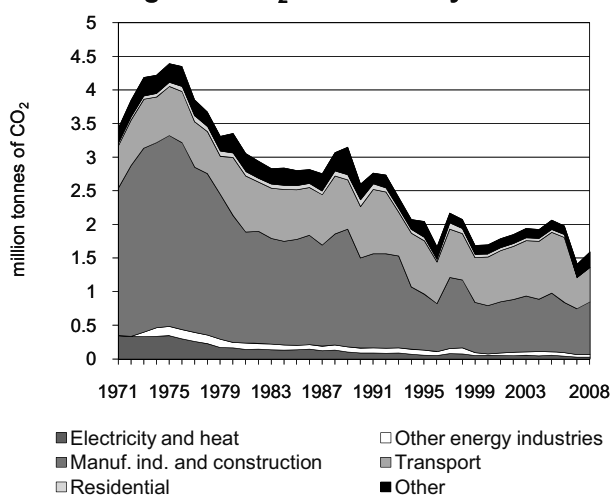
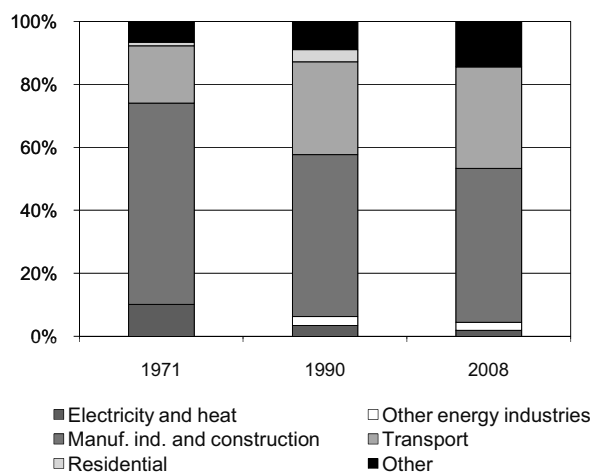
Figure 1. CO₂ emissions by fuelFigure 2. CO₂ emissions by sectorFigure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

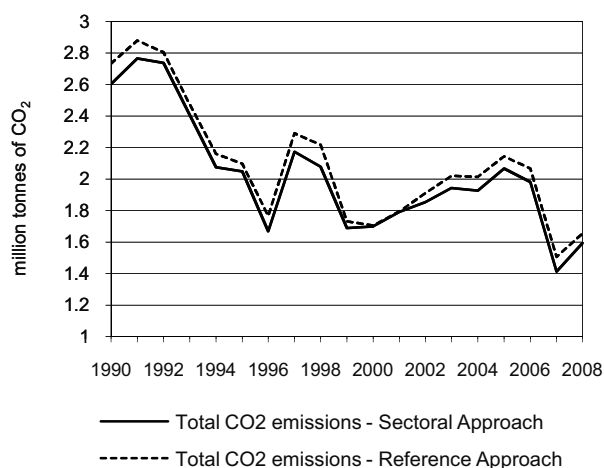


Figure 5. Electricity generation by fuel

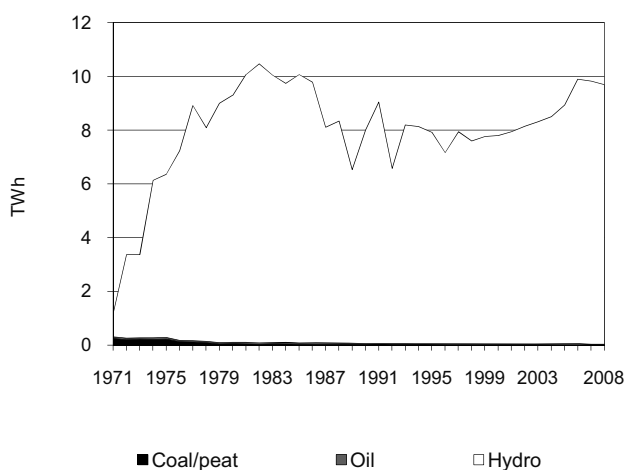
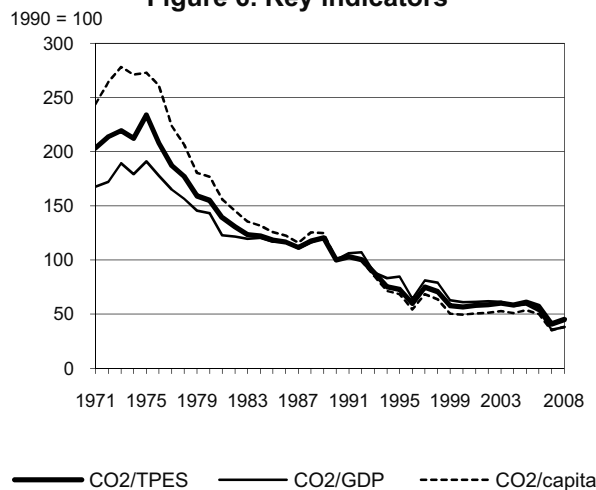


Figure 6. Key indicators



Zambia

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	2.60	2.05	1.70	2.07	1.98	1.41	1.59	-38.8%
CO ₂ Reference Approach (Mt of CO ₂)	2.73	2.10	1.71	2.14	2.07	1.50	1.66	-39.4%
TPES (PJ)	226	244	261	295	301	300	308	36.2%
TPES (Mtoe)	5.40	5.83	6.23	7.04	7.20	7.16	7.35	36.2%
GDP (billion 2000 USD)	3.03	2.82	3.24	4.09	4.34	4.61	4.89	61.4%
GDP PPP (billion 2000 USD)	7.86	7.33	8.41	10.62	11.28	11.98	12.69	61.4%
Population (millions)	7.91	9.11	10.47	11.74	12.02	12.31	12.62	59.5%
CO ₂ / TPES (t CO ₂ per TJ)	11.5	8.4	6.5	7.0	6.6	4.7	5.2	-55.1%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	0.86	0.73	0.52	0.51	0.46	0.31	0.33	-62.1%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.33	0.28	0.20	0.19	0.18	0.12	0.13	-62.1%
CO ₂ / population (t CO ₂ per capita)	0.33	0.22	0.16	0.18	0.16	0.11	0.13	-61.6%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	0.00	1.59	-	-	1.59	-38.8%
Main activity producer elec. and heat	-	0.03	-	-	0.03	14.3%
Unallocated autoproducers	0.00	0.00	-	-	0.01	-92.5%
Other energy industries	-	0.04	-	-	0.04	-43.1%
Manufacturing industries and construction	0.00	0.78	-	-	0.78	-41.9%
Transport	-	0.51	-	-	0.51	-32.9%
<i>of which: road</i>	-	0.35	-	-	0.35	-48.2%
Other	-	0.23	-	-	0.23	-31.1%
<i>of which: residential</i>	-	-	-	-	-	-100.0%
Reference Approach	0.00	1.65	-	-	1.66	-39.4%
Diff. due to losses and/or transformation	-	0.06	-	-	0.06	
Statistical differences	- 0.00	0.00	-	-	0.00	
<i>Memo: international marine bunkers</i>	-	-	-	-	-	-
<i>Memo: international aviation bunkers</i>	-	0.12	-	-	0.12	-38.1%

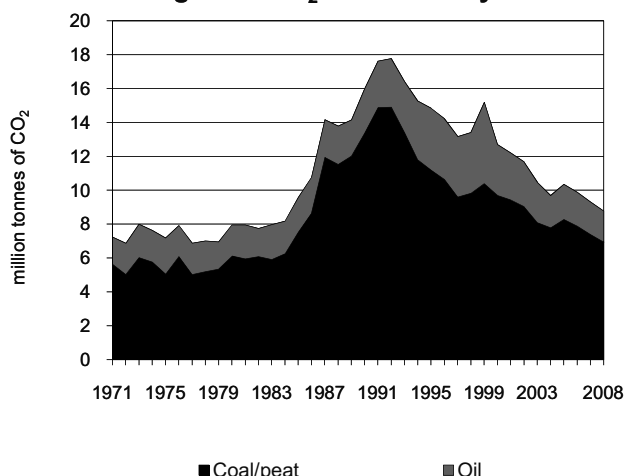
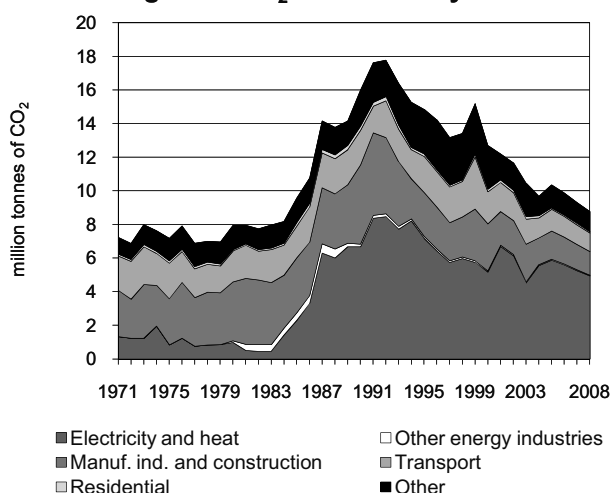
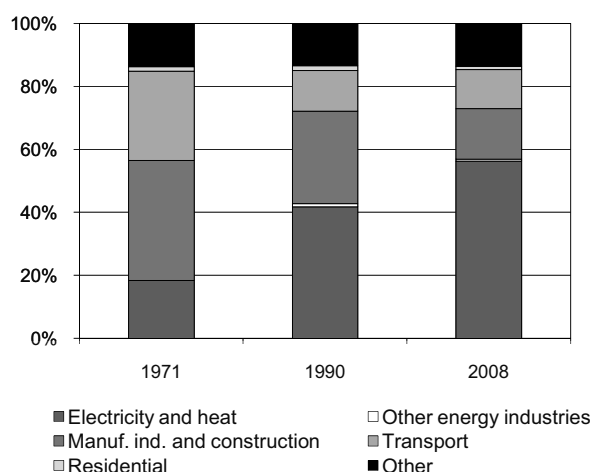
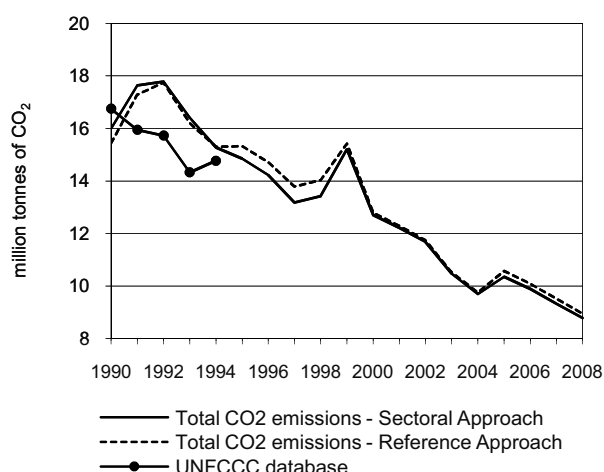
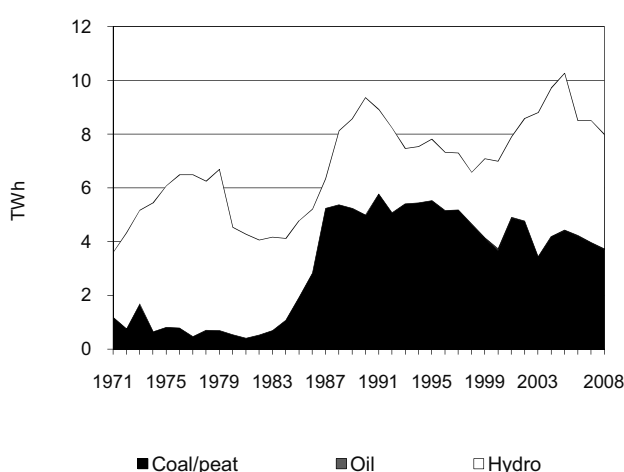
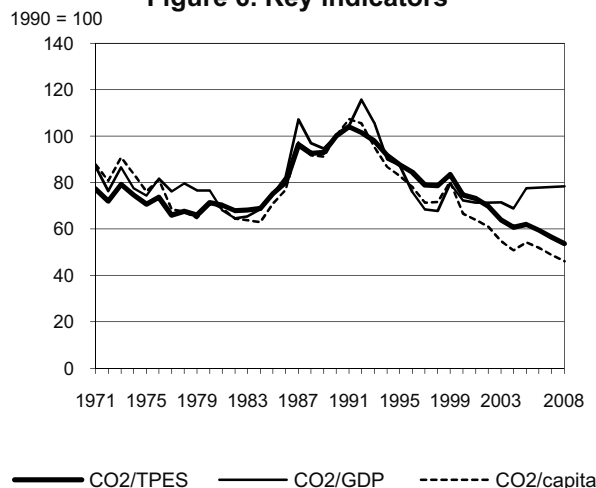
* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Manufacturing industries - oil	0.78	23.8%	1.5	1.5
Road - oil	0.35	-48.2%	0.7	2.3
Non-specified other - oil	0.23	51.7%	0.5	2.7
Other transport - oil	0.16	95.6%	0.3	3.0
Other energy industries - oil	0.04	-43.1%	0.1	3.1
Main activity prod. elec. and heat - oil	0.03	14.3%	0.1	3.2
Unallocated autoproducers - oil	0.00	-6.0%	0.0	3.2
Unallocated autoproducers - coal/peat	0.00	-96.6%	0.0	3.2
Manufacturing industries - coal/peat	0.00	-99.7%	0.0	3.2
-	-	-	-	-
-	-	-	-	-
<i>Memo: total CO₂ from fuel combustion</i>	<i>1.59</i>	<i>-38.8%</i>	<i>3.2</i>	<i>3.2</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

Zimbabwe

Figure 1. CO₂ emissions by fuel

Figure 2. CO₂ emissions by sector

Figure 3. CO₂ emissions by sector

Figure 4. Reference vs Sectoral Approach

Figure 5. Electricity generation by fuel

Figure 6. Key indicators


Zimbabwe

Key indicators

	1990	1995	2000	2005	2006	2007	2008	% change 90-08
CO ₂ Sectoral Approach (Mt of CO ₂)	16.00	14.85	12.71	10.36	9.88	9.32	8.78	-45.1%
CO ₂ Reference Approach (Mt of CO ₂)	15.44	15.33	12.79	10.58	10.09	9.51	8.96	-42.0%
TPES (PJ)	389	412	414	406	404	401	398	2.2%
TPES (Mtoe)	9.30	9.84	9.89	9.70	9.65	9.58	9.51	2.2%
GDP (billion 2000 USD)	6.73	7.15	7.40	5.62	5.35	5.02	4.72	-30.0%
GDP PPP (billion 2000 USD)	28.64	30.41	31.48	23.90	22.75	21.37	20.07	-29.9%
Population (millions)	10.46	11.71	12.46	12.48	12.46	12.45	12.46	19.1%
CO ₂ / TPES (t CO ₂ per TJ)	41.1	36.0	30.7	25.5	24.5	23.2	22.1	-46.3%
CO ₂ / GDP (kg CO ₂ per 2000 USD)	2.38	2.08	1.72	1.84	1.85	1.85	1.86	-21.7%
CO ₂ / GDP PPP (kg CO ₂ per 2000 USD)	0.56	0.49	0.40	0.43	0.43	0.44	0.44	-21.7%
CO ₂ / population (t CO ₂ per capita)	1.53	1.27	1.02	0.83	0.79	0.75	0.70	-53.9%

Ratios are based on the Sectoral Approach.

2008 CO₂ emissions by sector

<i>million tonnes of CO₂</i>	Coal/peat	Oil	Gas	Other *	Total	% change 90-08
Sectoral Approach	6.94	1.84	-	-	8.78	-45.1%
Main activity producer elec. and heat	4.89	0.05	-	-	4.94	-26.0%
Unallocated autoproducers	-	-	-	-	-	-
Other energy industries	0.05	-	-	-	0.05	-70.9%
Manufacturing industries and construction	1.18	0.23	-	-	1.41	-70.0%
Transport	0.02	1.08	-	-	1.10	-47.0%
<i>of which: road</i>	-	1.02	-	-	1.02	-23.1%
Other	0.80	0.48	-	-	1.28	-46.3%
<i>of which: residential</i>	0.00	0.08	-	-	0.09	-64.5%
Reference Approach	7.12	1.84	-	-	8.96	-42.0%
Diff. due to losses and/or transformation	0.29	-	-	-	0.29	
Statistical differences	- 0.12	-	-	-	- 0.12	
<i>Memo: international marine bunkers</i>	-	..	-	-	..	..
<i>Memo: international aviation bunkers</i>	-	0.03	-	-	0.03	-89.9%

* Other includes industrial waste and non-renewable municipal waste.

Key sources for CO₂ emissions from fuel combustion in 2008

IPCC source category	CO ₂ emissions (Mt of CO ₂)	% change 90-08	Level assessment (%) **	Cumulative total (%)
Main activity prod. elec. and heat - coal/peat	4.89	-26.8%	18.4	18.4
Manufacturing industries - coal/peat	1.18	-72.7%	4.4	22.9
Road - oil	1.02	-23.1%	3.8	26.7
Non-specified other sectors - coal/peat	0.80	-49.0%	3.0	29.7
Non-specified other - oil	0.40	-31.3%	1.5	31.2
Manufacturing industries - oil	0.23	-38.2%	0.9	32.1
Residential - oil	0.08	-29.0%	0.3	32.4
Other transport - oil	0.06	-74.7%	0.2	32.6
Main activity prod. elec. and heat - oil	0.05	x	0.2	32.8
Other energy industries - coal/peat	0.05	-70.9%	0.2	33.0
Other transport - coal/peat	0.02	-96.1%	0.1	33.1
<i>Memo: total CO₂ from fuel combustion</i>	<i>8.78</i>	<i>-45.1%</i>	<i>33.1</i>	<i>33.1</i>

** Percent calculated using the total GHG estimate for CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ excluding CO₂ emissions/removals from land use change and forestry.

PART III:

GREENHOUSE-GAS EMISSIONS

1. SHARES AND TRENDS IN GREENHOUSE-GAS EMISSIONS

The information in Part III (with the exception of CO₂ emissions from fuel combustion) has been provided by Dr. Jos G.J. Olivier from the Netherlands Environmental Assessment Agency (PBL) based on the EDGAR 4.1 database developed jointly by JRC and PBL as part of and in cooperation with the *Global Exchange and Interactions Activity* (GEIA) of IGBP and the *ACCENT Network of Excellence*.

Country data have been provided for 1990, 1995, 2000 and 2005. Moving from the EDGAR 4.0 to the EDGAR 4.1 database has resulted in revisions of greenhouse-gas estimates for some source categories. However, since all changes together more or less cancel out in the global total, global total emissions per gas have changed little. Please see Chapter 2 for further details on data sources and methodology.

Emission trends for gases and sources are provided in this discussion through 2005.

CO₂ emissions from fuel combustion constitute the majority of anthropogenic greenhouse-gas emissions. However, comprehensive analysis of emissions and emission trends considers other sources of CO₂ as well as other gases.

To complement work regarding the emissions of CO₂ from fuel combustion, the IEA elected to include the EDGAR data on other CO₂ sources and on five other greenhouse gases; CH₄, N₂O and the fluorinated gases (or “F-gases”) HFCs, PFCs and SF₆. These gases are addressed by the Kyoto Protocol.

When considering comparative shares and trends in greenhouse-gas emissions, data on gases and sources other than CO₂ from fuel combustion are much more uncertain. Country-specific estimates of CO₂ from biomass burning and F-gas emissions are particularly difficult to ascertain.

Shares by gas

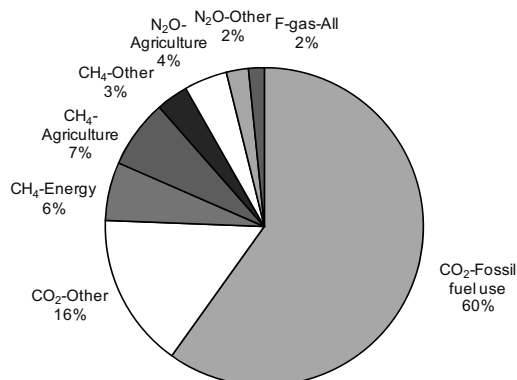
The contribution of non-CO₂ gases to total emissions can be estimated by expressing the emissions of all the gases in CO₂-equivalent units. For a given gas, emissions expressed in mass are multiplied by its specific weighting factor, the Global Warming Potential (GWP), an estimate of the relative contribution of a kilogramme of that gas to global radiative forcing, as compared to the same amount of CO₂, integrated over a fixed period of time (e.g. 100 years).

The UN Framework Convention on Climate Change (UNFCCC), following the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), uses the 100-year GWPs of 21 for CH₄, 310 for N₂O and 23 900 for SF₆. For the most common HFCs, GWPs vary between 140 and 3 000 (1 300 for HFC-134a). For the by-product HFC-23, the GWP is 11 700. The GWPs for PFCs vary between 6 500 (CF₄) to 9 200 (C₂F₆). These two PFCs, the ones most commonly used, are also significant sources of by-product emissions. This chapter expresses all emission data in CO₂-equivalents using these GWP values.

In 2005, CO₂ contributed 76% of global greenhouse-gas emissions, CH₄ about 16%, N₂O about 6% and the combined F-gases about 2% (Figure 1).

In 2005, the largest sources of greenhouse-gas emissions were the sectors of energy (66%, mainly CO₂ fossil fuel use), and agriculture (11%, mainly CH₄ and N₂O). Other sources of greenhouse gases were CO₂ from biomass burning (12%, mostly forest and peat fires and post-burn decay in non-Annex I countries), and CO₂ from cement production (2%, of which 44% originated in China).

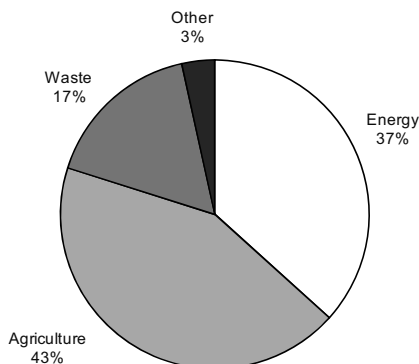
Figure 1. Global greenhouse-gas emissions by gas/source in 2005



As seen in Figure 2, on an individual gas basis, the major global sources for **methane** (CH₄) in 2005 were:

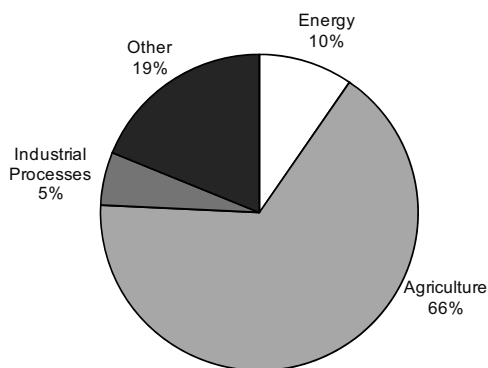
- agriculture (43%), mainly from enteric fermentation by animals and animal waste, from rice cultivation and from savannah burning;
- energy production and transmission (37%), mainly from coal production and gas production and transmission;
- waste (17%), from landfills and wastewater.

Figure 2. Global CH₄ emissions in 2005



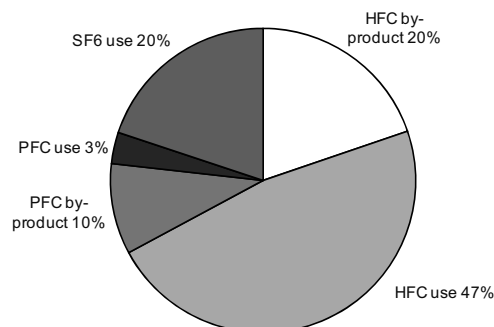
For **nitrous oxide** (N₂O), agriculture contributed 66% of emissions in 2005, mainly from synthetic fertilisers and animal waste dropped on soils (either as animal manure or by animals during grazing) and agricultural waste burning (Figure 3). A much smaller source is fuel combustion (10%, mainly from coal, fuelwood and road transport). Another small source is N₂O from industrial processes (5%), mostly in Annex I countries.

Figure 3. Global N₂O emissions in 2005



For the **fluorinated gases** (Figure 4), emissions are split between “use” and “by-products” because of the different ways they are produced. HFC use represented about half of the total in 2005, of which HFC 134a alone represented nearly half. Total by-product emissions of HFC contributed 20% and by-product emissions of PFCs another 10%. SF₆ use represented 20%, while PFC use represented the remaining 3%. Most F-gas emissions are emitted by Annex I countries.

Figure 4. Global F-gas emissions in 2005



Shares by region

In 2005, most **methane** emissions originated in non-Annex I regions such as Asia including China (39%) and Latin America (14%). Emissions from Annex I countries contributed 31%, largely driven by emissions from the Former Soviet Union and North America.

For methane, emissions from animals and their waste dominate sources in Latin America and South Asia, while emissions from rice cultivation are common in South, East and Southeast Asia. Coal production emissions are concentrated in East Asia (mainly China), North America, and EIT countries¹, while emissions from gas systems are concentrated in the Former Soviet Union and North America. Methane from landfills stems mainly from Annex I countries, whereas methane emissions from wastewater disposal originate predominantly in non-Annex I countries.

Non-Annex I regions produced two-thirds of global **nitrous oxide** emissions in 2005: Asia including China (34%), Latin America (15%) and Africa (16%). N₂O emissions from Annex I countries contributed 34% to the global total, with most emissions originating in Annex II North America (12%) and Annex II Europe (10%).

Of all nitrous oxide sources, animal waste emissions occur predominantly in the non-Annex I regions of Latin America, Africa and South Asia; N₂O from fertiliser use is largest in East Asia (mainly China) and Latin America followed by North America, Annex II Europe and South Asia (mainly India). N₂O emissions from crop production are largest in North America, Latin America, South Asia and East Asia. Industrial processes also emit significant volumes of N₂O.

The shares of Annex I countries in total CH₄ and total N₂O emissions (31% and 34%) were relatively low compared to their share in global CO₂ emissions (43%).

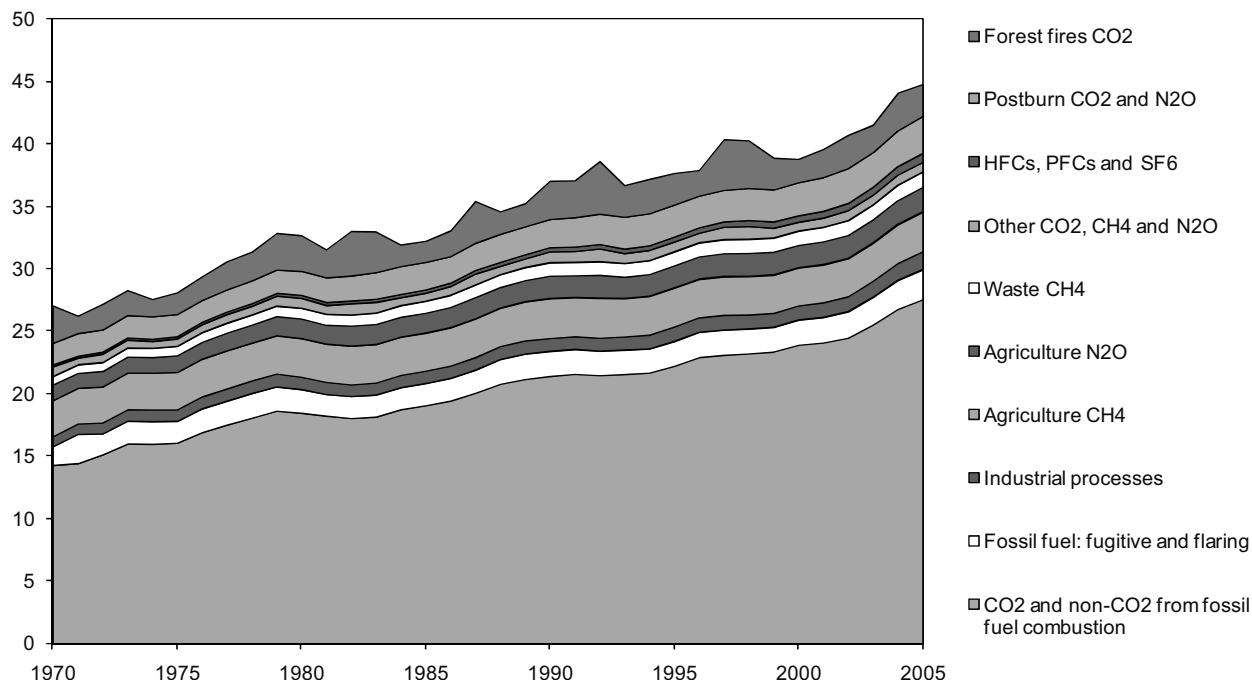
In 2005, most **fluorinated gas** emissions originated in Annex I countries, with Annex II North America contributing 36%, Annex II Europe 15%, Annex II Pacific 8% and the EIT countries 10%. Non-Annex I countries contributed about 30% to global F-gas emissions.

Total greenhouse-gas emission trends

Emissions related to fossil-fuels dominate the global trend in total greenhouse-gas emissions. Between 1970 and 2005, global anthropogenic CO₂ emissions increased by about 70%, CH₄ and N₂O by about 30% and 35% respectively and the F-gases by about 500%. Total emissions of all greenhouse gases - weighted by their GWP - increased by about 65% since 1970.

According to the EDGAR 4.1 dataset, global total greenhouse-gas emissions increased by 22% during the 1990-2005 period (Figure 5). A 29% growth in CO₂ emissions from fuel combustion drove much of this increase. Over the same period, CO₂ emissions from biomass burning – based on satellite observations – are assumed to have increased by only about 5%. Increases in CO₂ emissions from cement production (87%), CH₄ emissions from fossil fuel production (20%) and wastewater (26%), N₂O emissions from agriculture (9%) and the F-gases (about 125%, mainly from HFC use) also contributed to the total increase. The F-gases, for which 1995 generally serves as base year, increased their share of global emissions from 0.9% in 1990 to 1.0% in 1995 and to 1.6% in 2005.

1. In this chapter, economies in transition covers the former Soviet Union and Eastern European countries.

Figure 5. Trend in global greenhouse-gas emissions 1970-2005Gigatonnes of CO₂-eq.Sources: IEA for CO₂ from fuel combustion and JRC/PBL (2010) EDGAR 4.1 for all other sources.

CO₂ emission trends

Energy dominates the trend in CO₂ emissions, accounting for 80% of the global total CO₂ emissions in 2005. About 6% higher in 1970, this share now varies between 90 and 99% in most Annex I countries. Within non-Annex I countries, the energy share in CO₂ emissions varies more widely. Indeed, in some African, Latin American and Asian countries, it can be lower than 10%.

Over the 1990-2005 period, total fossil fuel combustion emissions of CO₂ increased about 29% worldwide (2% in Annex I countries and 87% in non-Annex I countries). Emissions from electricity and heat production and from road transport dominated global trends. Between 1990 and 2005, CO₂ emissions from electricity and heat production increased by 27% for Annex II countries and by 64% in the rest of the

world. Over the same period, road transport emissions rose 29% in Annex II countries and 61% in the other countries. By 2005, these two sectors together accounted for 58% of global total CO₂ emissions from fuel combustion. The Introduction at the beginning of this publication provides a more complete discussion of CO₂ emissions in 2008 and the trends in energy-related CO₂ emissions.

In 2005 deforestation accounted for about 7% of CO₂ emissions (or about 15% including indirect CO₂ emissions from post-burn decay of remaining aboveground biomass). According to satellite observations the share of deforestation in global emissions was about 18% in the 1970's, 1980's and 1990's. Since 2000, however, this share has decreased due to rapidly increasing emissions from fossil fuel combustion. In 2005, CO₂ emissions from cement production – excluding fossil fuel use - represented over 3% of total emissions worldwide. Between 1990 and 2005, CO₂ from cement production increased by almost 90%.

CH₄ emission trends

Between 1970 and 2005, global methane emissions rose about 30%. In the 1980s, emissions rose about 8%, driven by growth of emissions in the Former Soviet Union from gas production and transmission (Figure 6). In addition, enteric fermentation by ruminants and wastewater disposal contributed to the increased emissions, particularly in non-Annex I regions.

Emissions from rice cultivation are estimated to have decreased due to changes in types of rice and to other organic amendment practices. Furthermore, coal production shifted to incorporate more surface mining, which releases much less methane than underground mines. The economic decline of Former Soviet Union countries in the early 1990s strongly influenced global methane trends. Their emissions from coal production, from gas transmission and from animals (enteric fermentation) decreased substantially between 1990 and 1995. It should be stressed, however, that detailed statistics for this region are rather uncertain in this period.

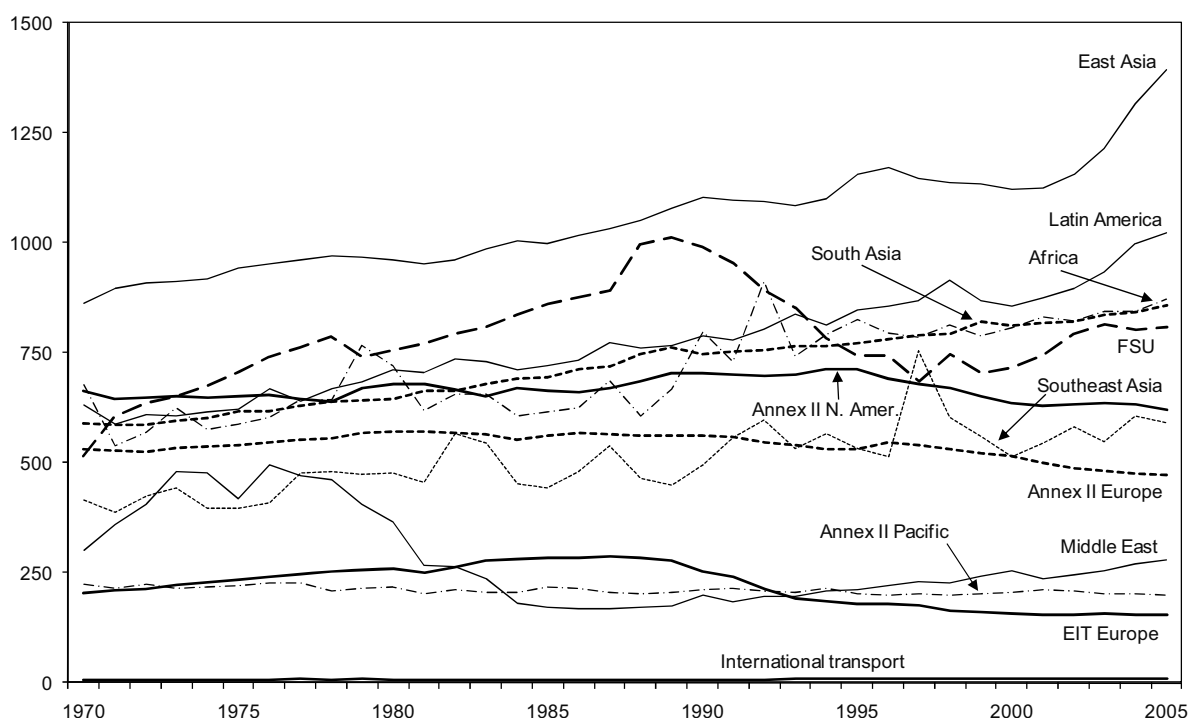
Based on country-specific trends of activity data and emission factors for the 1990-2005 period, global total

methane emissions are estimated to have effectively increased by about 6% between 1990 and 2005. Between 1990 and 2005, emissions in non-Annex I countries increased about 20%, with the largest absolute growth occurring in Asia and Latin America. Emissions in Annex I countries decreased by 17%, mainly driven by the countries of the Former Soviet Union. Annex II emissions as a whole decreased by 13%. Annex II Europe decreased by about 15%, mainly as a result of the policies of the United Kingdom and Germany, which reduced coal production and increased methane recovery from coal mines, entailing an emission reduction of more than 50%. In Annex II North America and Annex II Europe, methane emissions from landfills also decreased more than 30% and 40% respectively, due to enhanced methane recovery.

In the 1990s, emissions increased from gas production (particularly in the Middle East and North America), from waste handling sectors (particularly landfills in Latin America and wastewater in South Asia), from large-scale biomass burning in developing countries and from coal production in China. These increases were partly offset by decreases in fugitive emissions from coal production and CH₄ emissions from animals in EIT countries. Since 2000, emissions increased by 10%, driven by large increases in China and Brazil.

Figure 6. Trends in global and regional CH₄ emissions

Million tonnes of CO₂-eq.



Source: EDGAR 4.1.

N₂O emission trends

Between 1970 and 2005, global emissions of N₂O increased by about 35%. Since the 1970s, increased use of synthetic fertilisers and manure from livestock caused agricultural emissions in South Asia and East Asia to increase on average by 3-4% annually. These regional emission trends continued into the 2000s (Figure 7). Emissions from Latin America and Africa also increased in the 1990s, predominantly from the same sources and from forest fires.

In contrast, N₂O emissions from industrial processes have decreased by 40% during the 1980s. This decrease resulted from the gradual upgrade of global production facilities for nitric acid. In 1990 about 20% of the facilities were equipped for non-selective catalytic reduction limiting NO_x emissions while simultaneously reducing N₂O emissions.

During the 1970s, North America and Japan introduced catalytic converters in gasoline-fired cars to reduce emissions of precursors of tropospheric ozone, but with higher N₂O emissions as a side effect. Since

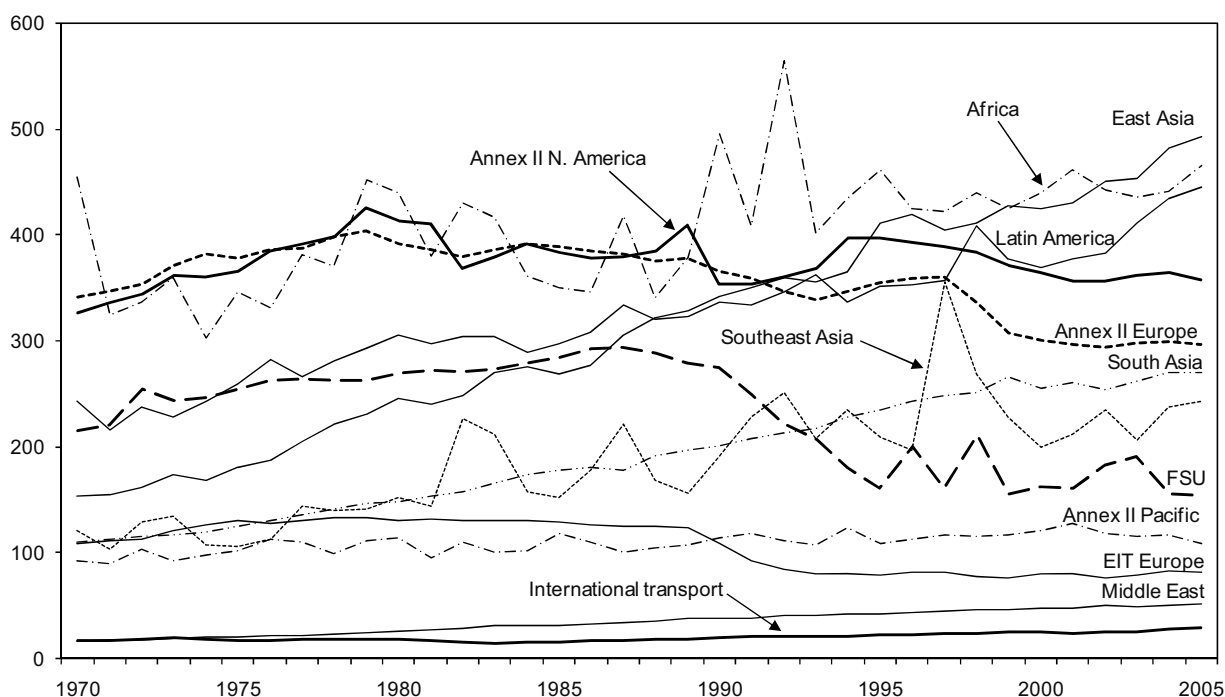
the 1990s this technology was also introduced in Europe and Australia. Until about 2000 the catalytic converters contributed to the increase in N₂O emissions in these countries, whereas in the late 1990s newer types were introduced with lower specific N₂O emissions.

In the 1990-2005 period, global N₂O emissions are estimated to have increased by almost 5%. The almost three-quarter reduction in industrial emissions from adipic acid manufacturing particularly limited this increase. Over this period, emissions in non-Annex I countries increased by 23%, mainly in the agricultural sector in South Asia, East Asia and Latin America. This increase was partially offset by decreasing emissions in the Former Soviet Union countries (about -45%) and, to a lesser extent, in other EIT countries. In Annex II Europe, N₂O decreased by almost 20% since 1990, mainly due to emission abatement in the chemical industry and to a decrease in the use of nitrogen fertilisers.

When considering these trends, one should note that the uncertainties in annual emissions of most sources of N₂O are very large, e.g. the uncertainty for agricultural sources may sometimes exceed 100%.

Figure 7. Trends in global and regional N₂O emissions

Million tonnes of CO₂-eq



Source: EDGAR 4.1.

HFC, PFC and SF₆ emission trends

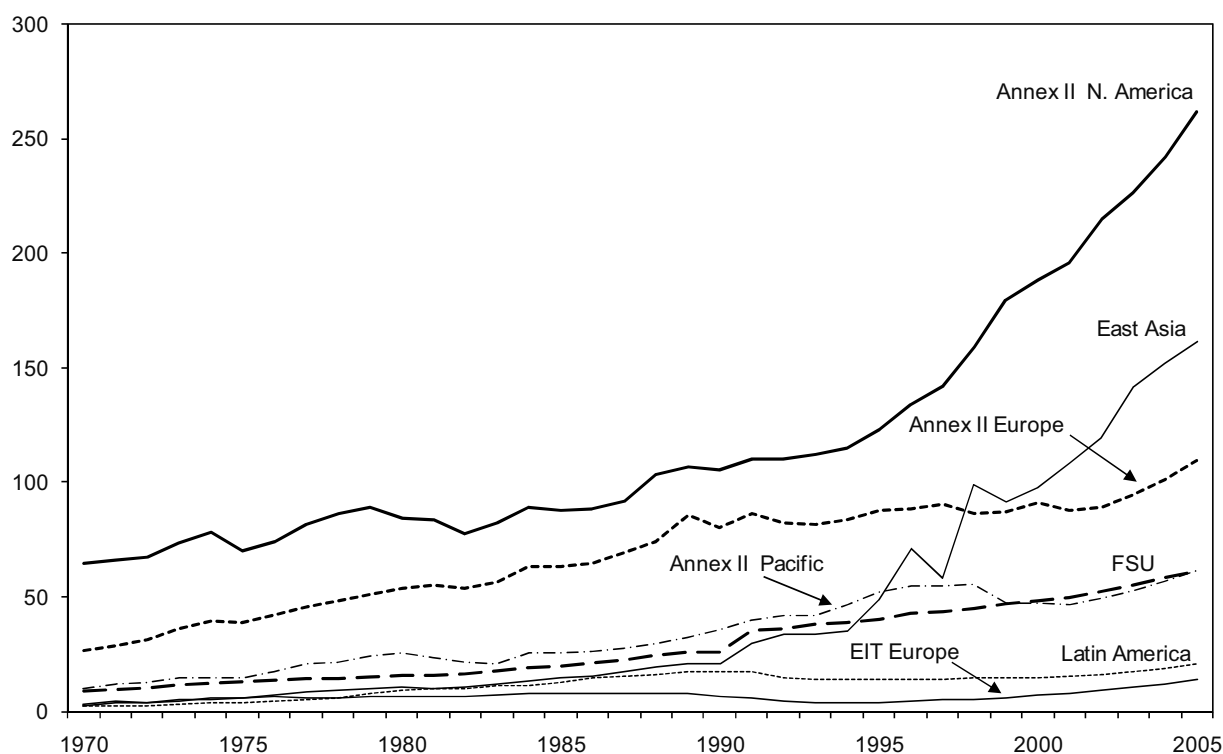
Between 1990 and 2005, the emissions of F-gases increased by about 125%, mainly due to an increase in HFC emissions: emissions of HFC in 2005 were more than 6 times higher than in 1990. During the same period, PFC emissions decreased by 20% while SF₆ emissions increased by 8%. Annex I regions experienced large growth in F-gas emissions, with average increases on the order of 50-150%. On a regional basis, total F-gas emission trends varied between 0% and 700% for the non-Annex I regions, with the largest absolute increases coming from China (included in East Asia).

Since 1995, global F-gas emissions increased more rapidly. The increase in HFC emissions (almost four times higher) more than offset the 9% reduction in SF₆ emissions and the 11% reduction in PFC emissions since 1995. The reductions in SF₆ were mainly due to reductions in emissions from manufacture and use of switchgear for the electricity sector. At present, global emissions of HFCs other than HFC-134a exceed emissions of HFC-134a, widely used for refrigeration and air-conditioning.

When considering these trends, one should note that the uncertainties in annual emissions of most sources of F-gases are very large, e.g. at a country level they may well exceed 100%. Therefore, the figures provided for individual countries should only be considered as order-of-magnitude estimates.

Figure 8. Trends in regional* F-gas emissions

Million tonnes of CO₂-eq.



* Only regions with significant emissions of F-gases have been included in this figure.

Source: EDGAR 4.1.

2. SOURCES AND METHODS

When looking at greenhouse-gas emission trends, limiting the emissions to CO₂ from fuel combustion means that the estimates give an incomplete picture of total greenhouse-gas emissions. Therefore, to put the CO₂ emissions from fuel combustion into context, information has been added from the emissions model “EDGAR”, developed by the Netherlands Environmental Assessment Agency (PBL) and the European Commissions’ Joint Research Centre (JRC) to provide global anthropogenic emissions of greenhouse gases to be used as a reference database for policy applications.

The information in Part III (with the exception of CO₂ emissions from fossil fuel combustion) has been provided by Jos G.J. Olivier from PBL and Greet Janssens-Maenhout and John A. van Aardenne from JRC based on the EDGAR 4.1 datasets. PBL and JRC are responsible for the calculation of the EDGAR 4.1 data. Please see below for further details.

Background on PBL and JRC

The **Netherlands Environmental Assessment Agency (PBL)**, is a government-funded agency that supports national and international policy makers by exploring future spatial and social trends that influence environmental, ecological and spatial quality, and by evaluating possible policy options. PBL explores the future quality of this environment and identifies possible strategic options and aims to contribute to improving the quality of political and administrative decision-making at regional, national, European and global scale by conducting outlook studies, analyses and evaluations in which an integrated approach and policy relevance are considered paramount.

PBL provides independent integrated assessments on topics such as sustainable development, energy and

climate change, biodiversity, spatial planning, transport, land use and air quality. PBL acts as an interface between science and policy and provides the Netherlands government and international organisations such as EU/EEA, UN, OECD and the World Bank with sound, evidence-based assessments. PBL employs about 275 people and works in close collaboration with national and international partners, to assess future policies and the effects of policies already in place. A key feature of PBL research is taking a broad view of the subject matter and revealing the links between different spatial scales of investigation. This ranges from Dutch problems in the European and global context to global topics such as climate change, as well as European and global sustainability issues.

The **Joint Research Centre (JRC)** is a Directorate General of the European Commission (EC). The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of the EU Policies. JRC employs about 2750 staff. The Institute for Environment and Sustainability (IES) is one of seven institutes of JRC, located in Ispra (Italy). The mission of IES is to provide scientific-technical support to the European Union's policies for the protection and sustainable development of the European and global environment. The IES is engaged in five main fields of activity: global change; emissions, air quality and health; water; terrestrial and natural resources; and renewable energies. The IES has over 400 staff members. The IES manages several large-scale research infrastructures and hosts a large number of unique pan-European and global databases. The main customers of the IES are the Policy Directorates-General of the European Commission, other European bodies such as the European Environment Agency (EEA) and the European Space Agency (ESA), and global organisations such as the United Nations Environment Programme (UNEP) and the United Nations Food and Agricultural Organisation (FAO).

PBL participates in the Topic Centre on Air and Climate Change of the European Environmental Agency (EEA), whose aim is to support EU policy on air pollution and climate change, together with 12 other organisations in Europe. PBL has been designated to lead the Centre. PBL and JRC were also involved in the work of the IPCC's National Greenhouse Gas Inventory Programme (NGGIP). The Institute for Environment and Sustainability of JRC cooperates with other European bodies like the European Environment Agency (EEA) and the European Space Agency (ESA), with authorities and other institutions in the EU member states and with international organisations such as UN-ECE, WHO, IPCC and NASA.

General note on EDGAR

Version 4 of the *Emission Database for Global Atmospheric Research*, in short the *EDGAR 4 system*, has been developed jointly by the European Commissions' Joint Research Centre (JRC) and the Netherlands Environmental Assessment Agency (PBL). The aim of the EDGAR system, which was started in 1992 with financial support from the Netherlands' Ministry of Housing, Spatial Planning and the Environment (VROM) and the Netherlands' National Research Programme on Global Air Pollution and Climate Change (NRP), is to provide global anthropogenic emissions of greenhouse gases CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ and of precursor gases and air pollutants CO, NO_x, NMVOC, SO₂ and the aerosols BC/OC, per source category, both at country/region levels as well as on a 0.1x0.1 degree grid. It is meant to serve as a reference database for policy applications, e.g. to provide JRC's POLES global economic energy scenario model and PBL's integrated global change model IMAGE 2 with emissions data and for assessments of potentials for emission reductions, as well as for scientific studies by providing gridded emissions as input for atmospheric models. The latter function is part of the *Global Exchange and Interactions Activity* (GEIA), that combines efforts to produce gridded inventories for all compounds relevant for the modelling activities within the *Analysis, Integration and Modelling of the Earth System* (AIMES) project of the *International Geosphere-Biosphere Programme* (IGBP) and of ACCENT, a Network of Excellence funded by the EC, 6th Framework Programme (FP6), Priority 1.1.6.3 Global Change and Ecosystems. EDGAR data have also been used in the Fourth Report of IPCC Working Group III, which was published in 2007 (IPCC, 2007).

Activity data were mostly taken from international statistical data sources and emission factors for greenhouse gases were selected mostly from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC, 2006) to ensure a consistent approach across countries. JRC and PBL have made all reasonable efforts to ensure that the information was generated correctly, but it is the responsibility of the EDGAR consortium to modify activity data when required to arrive at complete time series and for selecting the emission factors. It is stressed that the uncertainty in the resulting dataset at national level may be substantial, especially for methane and nitrous oxide, and even more so for the F-gases. The uncertainty is caused by the limited accuracy of international activity data used and in particular of emission factors selected for calculating emissions on a country level (Olivier *et al.*, 1999, 2001; Olivier and Berdowski, 2001; Olivier, 2002; Olivier *et al.*, 2005). However, since the methods used are either IPCC methodologies or comparable with them (see below) and global totals comply with budgets used in atmospheric studies and the data were based on international information sources, this dataset provides a sound basis for comparability.

Although this dataset has been constructed with great care, JRC and PBL do not accept any liability from using the data provided in this report including any inaccuracies or omissions in the data provided. For details on uncertainty and caveats identified in the dataset, as well as more detailed source category estimates, we refer to the EDGAR 4 website at edgar.jrc.ec.europa.eu. Also preliminary estimates for recent years than 2005 will be made publicly available through this website. Preliminary global trends of greenhouse-gas emissions will also be made available at PBL (2010).

Source definitions

For carbon dioxide:

Fuel combustion refers to fossil fuel combustion and the unstored fraction of non-energy/feedstock use (IPCC Source/Sink Category 1A) estimated using the IPCC Sectoral Approach from the *Revised 1996 IPCC Guidelines* (see Part I).

Fugitive refers to flaring of associated gas in oil and gas production (including indirect CO₂ from methane venting) (IPCC Source/Sink Category 1B).

Industrial Processes refers to production of cement, lime, soda ash, carbides, ammonia, methanol, ethylene and other chemicals, metals and to the use of soda

ash, limestone and dolomite, and non-energy use of lubricants and waxes (IPCC Source/Sink Category 2). However, from EDGAR 4.1, only emissions from production of cement, lime and soda ash and from the use of soda ash, limestone and dolomite are included here, since all others were estimated by the IEA and reported under 'Fuel combustion'.

Other refers to direct emissions from forest fires and peat fires plus emissions from decay (decomposition) of aboveground biomass that remains after logging and deforestation and emissions from peat fires and decay of drained peat soils (IPCC Source/Sink Category 5). CO₂ from solvent use (IPCC Source/Sink Category 3), application of agricultural lime (IPCC Source/Sink Category 4) and from fossil fuel fires, notably coal fires and the Kuwait oil fires (IPCC Source/Sink Category 7), is also included here.

For methane:

Energy comprises production, handling, transmission and combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises animals, animal waste, rice production, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Waste comprises landfills, wastewater treatment, human wastewater disposal and waste incineration (non-energy) (IPCC Source/Sink Category 6).

Others includes industrial process emissions such as methanol production, forest and peat fires and other vegetation fires (IPCC Source/Sink Categories 2 and 5).

For nitrous oxide:

Energy comprises combustion of fossil fuels and biofuels (IPCC Source/Sink Categories 1A and 1B).

Agriculture comprises fertiliser use (synthetic and animal manure), animal waste management, agricultural waste burning (non-energy, on-site) and savannah burning (IPCC Source/Sink Category 4).

Industrial Processes comprises non-combustion emissions from manufacturing of adipic acid, nitric acid, caprolactam and glyoxal (IPCC Source/Sink Category 2).

Others includes N₂O usage, forest and peat fires (including post-burn emissions from remaining biomass) and other vegetation fires, human sewage discharge and waste incineration (non-energy) and indirect N₂O from atmospheric deposition of NO_x and

NH₃ from non-agricultural sources (IPCC Source/Sink Categories 3, 5, 6 and 7).

For fluorinated gases:

HFC emissions comprise by-product emissions of HFC-23 from HCFC-22 manufacture and the use of HFCs (IPCC Source/Sink Categories 2E and 2F).

PFC emissions comprise by-product emissions of CF₄ and C₂F₆ from primary aluminium production and the use of PFCs, in particular for the manufacture of semiconductors, flat panel displays and photovoltaic cells (IPCC Source/Sink Categories 2C, 2E and 2F). *SF₆ emissions* stem from various sources of SF₆ use, of which the largest is the use and manufacture of Gas Insulated Switchgear (GIS) used in the electricity distribution networks (IPCC Source/Sink Categories 2C and 2F) and from SF₆ production (Category 2E).

Data sources and methodology for EDGAR 4.1

For EDGAR 4.1 the same methods were applied as for EDGAR 4.0 that was used in last year's edition, however, with some corrections (ammonia production, double counting in iron and steel production, landfills in Annex I countries, industrial wastewater in South Korea and the United States), improvements (CO₂ from cement clinker production) and some additional sources (small CO₂ sources in industrial processes such as production of specific chemicals and non-ferrous metals, small CH₄ sources such as production of coke and charcoal, SF₆ from SF₆ production, N₂O from N-fixing crops and indirect N₂O from atmospheric deposition of NO_x and NH₃ from non-agricultural sources (mostly fuel combustion). For greenhouse gases the default emission factors from the *2006 IPCC Guidelines* (IPCC, 2006) were used instead of those of the *Revised 1996 IPCC Guidelines* (IPCC, 1997), except for CH₄ and N₂O from road transport where technology-specific factors were used from the EMEP-EEA emission inventory guidebook (EEA, 2009).

To take into account emission reductions that have occurred due to control measures implemented since 1990, officially reported emissions were used for Annex I countries (mainly countries that were members of the OECD in 1990). These emission trends have been taken from the CRF emission data files which are part of the National Inventory Reports (NIR) to the UNFCCC (UNFCCC, 2008).

Energy / Fugitive / Biofuel

CO₂ emissions from fuel combustion in EDGAR 4.1 were calculated based on *Energy Balances of OECD Countries* and *Energy Balances of Non-OECD Countries* (IEA, 2007) using the Sectoral Approach from the *Revised 2006 IPCC Guidelines* (IPCC, 2006).

The data sources for **fugitive CO₂ emissions** and **CH₄ and N₂O from energy** are listed below. Data for fossil fuel production and use for 138 countries were taken from the IEA energy statistics for OECD and Non-OECD countries 1970-2005 (extended energy balances, in energy units) (IEA, 2007). This dataset comprises 94 sectors and 64 fuel types. For the countries of the former Soviet Union and former Yugoslavia a modified dataset was used to achieve a complete time series for the new countries for 1970-2005 of which the sum converges to the older dataset for the total former Soviet Union and Yugoslavia. For another 62 countries, the aggregated IEA data for the regions 'Other America', 'Other Africa' and 'Other Asia' have been split using the sectoral IEA data per region and total production and consumption figures per country of coal, gas and oil from energy statistics reported by the US Energy Information Administration (EIA, 2007).

Please note that the figures of CO₂ from fuel combustion and non-energy use of fuels in this report differ somewhat from the EDGAR 4.1 dataset. This is due to the following reasons:

- IEA energy statistics used may differ slightly due to updates included in more recent IEA releases. For EDGAR 4.1 the release of 2007 was used (IEA, 2007);
- the IEA uses the default CO₂ emission factors from the *Revised 1996 IPCC Guidelines*, which differ slightly due to different default oxidation factors (coal updated value +2%, oil products +1%, natural gas +0.5%) and due to updated defaults for carbon content for some fuels of which the quality may vary considerably (mainly refinery gas, updated value -7%, coke oven gas -7%, blast furnace gas +7%, coke -1%);
- the IEA estimates CO₂ emissions from carbon released in fossil fuel use labelled in the sectoral energy balance as 'non-energy use' or 'chemical feedstock' using default fractions stored. For EDGAR 4.1, default emission factors and methods from the *2006 IPCC Guidelines* were applied, which may give rise to considerable differences compared to the 1996 guidelines.

In addition, the subtraction of the non-energy/feedstock fuel use part of the EDGAR dataset for combining with the IEA CO₂ dataset also introduces some uncertainty.

For estimating CH₄ emissions from fossil fuel production and transmission, hard coal and brown coal production data have been split into surface and underground mining based on various national reports. For gas transport and distribution, pipeline length was used as activity data. Pipeline length and material statistics are taken from reports on Europe by Eurogas and Marcogaz, national reports (e.g. the United States and Canada), UNFCCC (2008) and supplemental data from CIA (2008). Total amounts of natural gas flared (including venting) are based on CO₂ trends from CDIAC (Marland *et al.*, 2006), supplemented with EIA (2008) and UNFCCC (2008) for missing years and missing countries and GGFR (2008) for 2004 and 2005.

Biofuel data were also taken from IEA (2007). However, to avoid incomplete time series for large sectors, solid biomass consumption in the residential and commercial sectors in non-OECD countries were replaced by fuelwood and charcoal consumption from FAO (2007a). Vegetal waste used as fuel is based on the amounts of crop residues per country and fractions used as fuel based on Yevich and Logan (2003) and IPCC (2006). The amount of dung used as fuel is based on the total amount of manure produced per country and the fraction of total manure burned as fuel with fractions from IPCC (2006) and UNFCCC (2008). The results are rather close to the work of Fernandes *et al.* (2007) who did an extensive analysis of global and regional biofuel use in 2000. Charcoal production data were taken from IEA (2009) and supplemented or extrapolated using data from UN (2010) for 1990-2005 and FAO (2010) for pre-1990 data and 49 more countries not included in the IEA dataset.

Emission factors for fossil fuel production and use are based on the default values in the *2006 IPCC Guidelines* (IPCC, 2006). Methane emission factors for coal mining are based on average depths of coal production based on CIAB (1994), EURACOAL (2008), Kirchgessner *et al.* (1993) and include post mining emissions. Methane recovery from coal mining was included for twelve countries amounting to about 1.3 Tg in 1990 (of which about one-third was allocated to the United States and Germany). Recovery in 2005 was estimated at 2.2 Tg (of which 40% in the United States and 20% in China) (UNFCCC, 2008; Thakur *et al.*, 1994, 1996; EPA, 2008).

Emission factors for oil and gas production, transport and distribution are from IPCC (2006), supplemented with data from UNFCCC (2008), except for the emission factor for CH₄ from oil tanker transport which is from Rudd and Hill (2001). The CH₄ emission factor for venting and flaring has been derived from country-specific data reported to UNFCCC (2008); the CO₂ emission factor for venting and flaring includes the indirect emissions through gas venting.

For N₂O from gasoline cars in road transport, the fraction of cars equipped with different types of catalytic converters was taken into account (based on various references). The factors for biofuel combustion and charcoal production were also taken from the 2006 IPCC Guidelines.

Industrial processes

Production data of CO₂ sources cement, iron and steel, non-ferrous metals and various chemicals were based on UN Industrial Commodity Statistics (UN, 2006a), often supplemented for recent years by data from the US Geological Survey (USGS, 2007). This also applies to paper, wine, beer and bread production. Other CO₂ sources such as production of lime, soda ash, ammonia, ferroalloys and non-ferrous metals are from USGS (2007), supplemented by data reported to the UNFCCC (2008). IFA (2007) was used for urea production (where it is assumed that the fossil carbon in CO₂ from ammonia production is stored) and FAO (2007a,c) for production of pulp, meat and poultry. Iron and steel production was further split into technologies (basic oxygen furnace, open hearth, electric arc furnace) using data from WSA (2008).

For the N₂O sources nitric acid, adipic acid and caprolactam, production data are based on UNFCCC (2008) and on (smoothed and averaged data) SRIC (2005). For other industrial production for which no international statistics were available, such as silicon carbide and glyoxal, UNFCCC (2008) was used, which is limited to Annex I countries.

However, for many countries interpolations and extrapolations were necessary to arrive at complete time series per country for 1970-2005. Special attention had to be given to new EIT countries, in particular to former Soviet Union and former Yugoslavia countries, to match the older totals for the former countries.

Emission factors for CO₂, CH₄ and N₂O are described in IPCC (2006). Note that emissions of CO₂ from cement production are only a proxy for cement clinker production. The N₂O emission factors for the production of adipic acid, nitric acid, caprolactam and

glyoxal are based on IPCC (2006). For adipic acid, abatement is only assumed from 1990 onwards if indicated in UNFCCC (2008) combined with activity data from SRIC (2005). For nitric acid in 1970, all old technology is assumed, changing their technology towards 1990 into high pressure plants in non-Annex I countries and a mix of low and medium pressure plants in Annex I countries that matches reported emissions in UNFCCC (2008). In addition, about 20% of global total production is equipped with Non-Selective Catalytic Reduction (NSCR) technology all in Annex II countries (Choe *et al.*, 1993). The emission factors for the F-gases as by-product emissions were based on IPCC (2006), but modified to match global emissions to observations of atmospheric concentrations.

Global annual total production of HCFC-22 was taken from AFEAS (2008) and McCulloch and Lindley (2007) to include captive production. Primary aluminium production statistics per country from UN (2006a) were combined with smelters types characterised by one of five technologies according to Aluminium Verlag (2007) and Hunt (2004) for China. The default emission factor for HFC-23 from HCFC-22 manufacture was set for non-OECD countries to the IPCC default for old, unoptimised plants and for OECD countries somewhat lower and decreasing over time to reflect atmospheric concentrations. Country-specific fractions of emission abatement were estimated for six Annex II countries based on reported emissions in UNFCCC (2008). For aluminium production the CF₄ emission factors per technology are based on factors for 1990-2002 reported by IAI (2006, 2008) based on large surveys, but with modifications for Söderberg technologies to comply with atmospheric concentration trends, and for C₂F₆ based on the ratio to CF₄ reported in IPCC (2006) for default tier 2 emission factors.

Global consumption of HFC-125, 134a (in three applications) and 143a was from AFEAS (2008), for HFC-152a, 227ea, 245fa, 32 and 365mfc from Ashford *et al.* (2004) and for HFC-23, 236fa and 43-10-mee from UNFCCC (2008). Global HFC consumption was distributed to countries according to their share in global CFC-12 or CFC-11 consumption (ODP consumption statistics from the UN Ozone Secretariat) depending on their characteristics (mostly for refrigeration/air-conditioning or mostly for other applications (i.e. foams/aerosols)) and calibrated to regional totals calculated by Ashford *et al.* (2004)). Global emission factors for HFC use were derived from the emissions also reported by these data sources, except

for HFC-125 and 143a which were from Ashford *et al.* (2004).

Global consumption data of PFCs (and SF₆) for semiconductor manufacture were for Annex I countries in 1990-2005 based on UNFCCC (2008) and the National Inventory Report 2008 of Japan., for Taiwan on Lu (2006) and other non-Annex I countries for 1995 and 2005 based on their global share in semiconductor manufacture (SEMI, 1998; SEMI, 2009). The trend from 1982 to 2005 of PFC use within four regions/countries (the United States, Japan, Europe and Rest of the World) was estimated from the world market sales (SIA, 2006). Global CF₄ and SF₆ consumption and consumption in Taiwan for the production of flat panel displays for 2003 is from Lu (2006); trends and market shares per country from SEMI (2007). National consumption of PFCs for PV cells is based on the production per country of PV systems in m² (estimated from production statistics in MW for 1985-2003; Kammen, 2005; and for 1990, 1995, 2000-2007: Jäger-Waldau, 2008). The emission factors are from IPCC (2006), for semiconductors and FPD using the tier 2a factors and for PV production taking into account the fraction of thin film production per country and assuming that 50% of the manufacturers uses PFCs. PFC consumption for other PFC uses was based on data for PFC use in fire extinguishing and air-conditioning, and use as solvent reported by a few Annex I countries (UNFCCC, 2008) and extrapolated to all Annex I countries and assuming an emission factor of 1.

Global consumption of SF₆ per application was taken from Knopman and Smythe (2007). For SF₆ containing switchgear, equipment manufacture and utility stock estimates were adjusted as in Mais and Brenninkmeijer (1998) and the regional and per country distribution was based on various references (*e.g.* Mais and Brenninkmeijer, 1998; Bitsch, 1998, pers. comm.) and for missing countries and years based on the trend in the increase of electricity consumption as a proxy for GIS stock additions. For primary magnesium production and diecasting global consumption was distributed using production statistics from USGS (2007) and IMA (1999a,b) and others for the number of diecasting companies per country. Other sources were distributed as follows: sport shoes among Annex I countries based on GDP, tyres according to reported consumption in Germany (UNFCCC, 2008), sound insulating windows mainly in Germany with 10% used in neighbouring countries, aluminium production as reported in UNFCCC (2008), accelerators

were distributed according to the number of high-energy physics labs and miscellaneous sources according to the number of airborne early warning systems such as AWACs.

Note that both the variables for distributing global total consumption per source category and the emission factors may vary widely between different plants and countries. This implies that the estimated emissions of F-gases at country level should be considered as very uncertain (an order of magnitude).

Please note that CO₂ from fossil carbon accounted for in this sector (such as from ammonia and carbide production, iron and steel production using a blast furnace and metal production through smelting processes with carbon anode consumption) and CO₂ from urea application in agriculture have been subtracted from the EDGAR 4.1 data to avoid double counting with the IEA CO₂ dataset for fuel combustion that includes these emissions (see previous section on Energy).

Solvent and other product use

For N₂O from the use of anaesthesia an amount of 24 g N₂O and 34 g N₂O per capita in 2000 was used for EIT and Annex II countries, respectively, based on the average values in UNFCCC (2008) and tentatively set at 5 g/cap/year for non-Annex I countries, based on Kroeze (1994). Globally a declining rate from 1990 to 2005 of 20% was assumed as observed for total Annex I countries.

For N₂O from aerosol spray cans an amount of 10 g N₂O per capita in 2000 was used for Annex I countries based on the average values in UNFCCC (2008) and none for non-Annex I countries. A uniform inclining rate from 1990 to 2005 of 50% was assumed as observed for total Annex I countries.

Agriculture

In general, the IPCC (2006) methodology and new default emission factors for CO₂, CH₄ and N₂O were used to estimate agricultural emissions, except for the instances mentioned below. Please note that N₂O emissions from agriculture as reported in EDGAR 4.1 are substantially lower than those presently reported by most Annex I countries and in EDGAR 3.2 due to two markedly lower emission factors: the default IPCC emission factor ("EF1") for direct soil emissions of N₂O from the use of synthetic fertilisers, manure used as fertiliser and from crop residues left in the field has been reduced by 20% and the default

emission factor (“EF5”) for indirect N₂O emissions from nitrogen leaching and run-off been reduced by 70% compared to the values recommended in the 1996 IPCC Guidelines and the IPCC Good Practice Guidance (IPCC, 1997, 2000).

Livestock numbers were taken from FAO (2007b,c). For enteric fermentation for cattle, country-specific methane emission factors were calculated following the IPCC methodology (IPCC, 2006) using country-specific milk yield (dairy cattle) and carcass weight (other cattle) trends from FAO (2007c) to estimate the trends in the emission factors. For other animal types, regional emission factors from IPCC (2006) were used.

Livestock numbers were combined with estimates for animal waste generated per head to estimate the total amount of animal waste generated. Nitrogen excretion rates for cattle, pigs and chicken in Europe were based on the CAPRI model (Pérez, 2005; Britz, 2005; Leip *et al.*, 2007) and for all other countries and animal types in IPCC (2006). The trend in carcass weight was used to determine the development in nitrogen excretion over time. The shares of different animal waste management systems were based on regional defaults provided in IPCC (2006) and regional trend estimates for dairy and non-dairy cattle for the fractions stall-fed, extensive grazing and mixed systems from Bouwman *et al.* (2005). Methane emissions from manure management were estimated by applying default IPCC emission factors for each country and temperature zone. For the latter, the 1x1 degree grid map for non-dairy cattle from Lerner *et al.* (1988) was used and the annual average temperature per grid cell from New *et al.* (1999) to calculate the livestock fractions of the countries in 19 annual mean temperature zones for cattle, swine and buffalo and three climates zones for other animals (cold, temperate, warm). N₂O emissions from manure management were based on distribution of manure management systems from Annex I countries reporting to the UNFCCC (2008), Zhou *et al.* (2007) for China and IPCC (2006) for the rest of the countries.

The total area harvested for rice cultivation was obtained from FAO (2007d), which was split over different ecology types (rainfed, irrigated, deep water and upland) using IRRI (2007). The total harvested area of rice production in China was increased by 40%, due to recognition that official harvested rice area statistics of China are largely underestimating the actual area (Denier van der Gon, 1999; 2000; personal communication, 2000). However, methane emission factors were not from IPCC (2006) but from a review

of Neue (1997), and country-specific studies by Mitra *et al.* (2004), Gupta *et al.* (2002) and IIASA (2007). For the period 1970-2000 a trend in the emission factors was assumed based on data of Denier van der Gon (1999, 2000).

The same data as described above for manure management were used to estimate N₂O emissions from the use of animal waste as fertilizer by taking into account loss of nitrogen that occurs from manure management systems before manure is applied to soils and additional nitrogen introduced by bedding material. N₂O emissions from fertilizer use and CO₂ from urea fertilization were estimated based on IFA (2007) and FAO (2007e) statistics and emission factors from IPCC (2006).

CO₂ emissions from liming of soils were estimated based on reporting of Annex I countries to the UNFCCC (2008), and on the use of ammonium fertilizers for other countries (FAO, 2007e), as liming is needed to balance the acidity caused by ammonium fertilizers.

Areas of cultivated histosols were estimated by combining three different maps: the FAO climate map (FAO Geonetwork, 2007a), the FAO soil map (FAO Geonetwork, 2007b) and the land use map of Goldewijk *et al.* (2007). However, where available areas reported by Annex I countries to the UNFCCC (2008) were used. Separate N₂O emission factors were applied for tropical and non-tropical regions (IPCC, 2006).

Nitrogen and dry-matter content of agricultural residues were estimated based on cultivation area and yield for 24 crop types from FAO (2007d) and IPCC (2006) factors. The fractions of crop residues removed from and burned in the field were estimated using data of Yevich and Logan (2003) and UNFCCC (2008) for fractions burned in the field by Annex I countries. Subsequently, N₂O emissions from crop residues left in the field and non-CO₂ emissions from field burning of the residues were calculated using IPCC (2006) emission factors.

Indirect N₂O emissions from leaching and runoff were estimated based on nitrogen input to agricultural soils as described above. Leaching and run-off was assumed to occur in other areas than non-irrigated dry-land regions, which were identified based on FAO (1999; 2000; 2005) and Murray *et al.* (1999). The fraction of nitrogen lost through leaching and runoff was based on a study of Van Dreht *et al.* (2003). IPCC (2006) emission factors were used for indirect

N₂O from leaching and runoff, as well as from deposition of agricultural NH₃ and NO_x emissions.

For savannah burning, estimates for areas burned are based on satellite measurements (see next section) and emission factors from IPCC (2006).

Large-scale biomass burning

For estimating the amounts of biomass burned in large-scale fires the three key parameters have to be multiplied: (a) area burned, (b) aboveground biomass density (fuel load) (kg/ha), and (c) fraction of aboveground biomass burned (combustion completeness). Country-specific data for large-scale biomass burning (total amount of dry matter burned, which were subdivided into tropical and non-tropical forest fires, savannah fires and grassland fires), have been taken from the gridded data at 1°x1° of the *Global Fire Emissions Database* (GFED version 2; Van der Werf *et al.*, 2006) for the years 1997-2005. For the years before 1997, the GFED v2.0 data were scaled back to 1970 using regional biomass burning trends from the RETRO dataset, which comprises the 1960-2000 period (Schultz *et al.*, 2008). GFED data in agricultural areas were attributed to savannah and grassland fires. There is an insignificant overlap with the EDGAR category for agricultural waste burning. The GFED data on biomass burning were estimated using burned area time series for 2001-2005 derived from the MODIS satellite sensors in combination with the fuel load estimated by the satellite-driven Carnegie-Ames-Stanford-Approach (CASA) biogeochemical model that was modified to account for fires. The 1997–2000 period was included using fire counts from the VIRS/ATSR sensors. The burning areas were mapped at 0.5x0.5 km spatial resolution.

The greenhouse-gas emission factors are from IPCC (2006), which are taken from Andreae and Merlet (2001), including the carbon content of 0.47 kg C/kg dry matter, which is the default value for tropical forest. For greenhouse gas accounting purposes, net CO₂ emissions from savannah and grassland fires have been assumed to be zero (organic carbon in a short cycle). There is a large uncertainty in the assumptions for the carbon contents and the fraction of carbon that is actually being burned and thus in the amount of burned carbon.

CO₂ emissions from large-scale biomass burning are only one component of emissions from forest fires. Roughly half of the aboveground biomass is not burned, but decomposes over time. This results in delayed decay emissions of approximately the same level of magnitude as the direct emissions from the

fires but distributed over a period of 10 to 20 years (IPCC, 2006). Post-burn CO₂ emissions have been estimated from the same activity data as direct burning emissions assuming that remaining aboveground biomass decays in 15 year after the year the fire or deforestation occurred, i.e. 1/15 per year and a carbon content of 0.47 kg C/kg dry matter tropical forest from IPCC (2006). This includes CO₂ emissions from decomposition of organic carbon in drained peat soils in Indonesia (Page *et al.*, 2002; Hooijer *et al.*, 2006), neglecting the much smaller amounts in Malaysia, Papua New Guinea and Brunei. In addition, enhanced N₂O emissions that occur after large-scale tropical biomass burning (Bouwman *et al.*, 1997) were calculated from the post-burn biomass dataset.

Waste handling

For estimating the amount of organic solid waste in landfills three key parameters have to be determined: (a) Municipal Solid Waste (MSW) generated per year (kg/cap), (b) fraction of total solid waste that is landfilled, and (c) fraction of Degradable Organic Carbon (DOC) in the MSW (%). Total and urban population figures were taken from UN (2006b). The amounts of Municipal Solid Waste (MSW) generated are the primary statistics for emissions from landfills. For 70 countries, the 2006 IPCC Guidelines provide country-specific data for 2000 of the amount of MSW generated per year per capita (urban capita in case of non-Annex I countries) and the fraction landfilled and incinerated. For 58 more countries, country-specific values for the MSW generation per capita were found in the literature. For the remaining 91 countries, the waste generation per capita in 2000 was estimated using an exponential fit of the IPCC (2006) country-specific data for 70 countries of MSW/cap for 2000 to GDP/cap. For Annex I countries trend data for MSW generation/cap are available for the period 1990-2005 (UNFCCC, 2008). For other years and for other countries for which these data are not available, extrapolation from 2000 back and forward was done using the exponential fit mentioned above. When the country-specific fraction of MSW landfilled was missing, regional defaults provided in IPCC (2006) were used. In addition, UN statistics on MSW treatment may provide country-specific data for some other years than 2000. Based on regional defaults for the composition of MSW, IPCC (2006) provides regional defaults for the fraction Degradable Organic Carbon (DOC). However, for Annex I countries, country-specific data from UNFCCC (2008) were used (sometimes including a change over time) and for 94 Non-Annex I countries, country-specific MSW composition data were

found, from which the average DOC value was calculated. However, in version 4.1, for a number of Annex I countries the DOC fraction was adjusted to better reflect the overall emission trends for landfills as reported to UNFCCC (2008).

For calculation of methane emissions from landfills using the First Order Decay (FOD) model of IPCC (2006), the Methane Conversion Factor (MCF), the k-value and the Oxidation Factor (OX) are required. The MCF represents the type of landfill, managed aerobic or anaerobic, unmanaged deep or shallow. Apart from country-specific time series for 11 Annex I countries, two sets of MCF time series for Annex I and non-Annex I countries were determined based on assumptions for the fractions of the four landfill types over time. For the k-value, which is the methane generation rate (that is inverse proportional to the half life value of the DOC), default regional MSW composition weighted k-values for four climate zones (tropical dry/wet and non-tropical dry/wet) are provided by IPCC (2006). For EDGAR 4.1, country-specific values were calculated using the country-specific fractions of population (urban population for non-Annex I countries) in each climate zone. For the Oxidation Factor the IPCC default values were used (0.1 for Annex I and 0 for non-Annex I). Finally, the amounts of methane recovered (and used or flared), that is to be subtracted from the gross methane emissions, were used as reported by Annex I countries in UNFCCC (2008) and for 11 non-Annex I countries reported in the literature. Total recovery in 2005 is estimated at almost 11 Tg CH₄, half of which by the United States and about a quarter by the United Kingdom; 2% is recovered by non-Annex I countries.

For domestic wastewater, total organics in wastewater (BOD₅) was estimated using regional default or country-specific default values for BOD₅ generation per capita per day provided by IPCC (2006). For industrial wastewater, total organically degradable material in wastewater from industry was calculated per type of industry from WW generation per ton of product and COD values (chemical oxygen demand (industrial degradable organic component in wastewater) in kg/m³ WW, using defaults from IPCC (2006). Production statistics for industry types that produce most organics in wastewater are available from UN (2006a). Examples are meat and poultry, raw sugar, alcohol, pulp and organic chemicals. To estimate methane emissions from domestic wastewater, additional information is required on the WW treatment systems, such as sewer (to wastewater treatment plants (WWTP) or to raw discharge), latrines by type, open pits and septic tanks. Regional or country-

specific default fractions for 2000 were from IPCC (2006). In addition, country-specific fractions of improved sanitation over time from Van Dreht *et al.* (2009) were used, based on the UN Water Supply and Sanitation (WSS) dataset and other national reports, and fractions reported by Doorn and Liles (1999). For industrial methane emissions, fractions on-site treatment in WWTP, sewer with and without city-WWTP, and raw discharge were based on regional values reported by Doorn *et al.* (1997). To calculate methane emissions from wastewater, default factors provided by IPCC (2006) per type of WW treatment were used, with default methane correction factors (MCF) per type of treatment. For Annex I countries, OECD or EIT average fractions of methane recovered in WWTPs (and either used as biogas or flared) were used, except for five countries for which country-specific values reported in UNFCCC (2008) were used.

For estimating N₂O emissions from wastewater, the activity data is total annual amount of nitrogen in the wastewater, which was calculated from annual protein consumption per capita reported by FAO (2007f), using correction factors for non-consumed protein and for the fraction of industrial and commercial protein that is co-discharged. For the correction factors and the N₂O emission factor, defaults provided in IPCC (2006) were used.

Other waste sources are incineration, with activity data from UNFCCC (2008) and IPCC (2006) and extrapolations assuming a fixed ratio to landfilling, and composting (UNFCCC, 2008; ECN, 2008; CCC, 2008).

Other sources

Indirect N₂O emissions from atmospheric deposition of nitrogen of NO_x and NH₃ emissions from non-agricultural sources, mainly fossil fuel combustion and large scale biomass burning, were estimated using nitrogen in NO_x and NH₃ emissions from these sources as activity data. The same IPCC (2006) emission factor was used for indirect N₂O from atmospheric deposition of nitrogen from NH₃ and NO_x emissions as was used for agricultural emissions.

We note that EDGAR 4.1 estimates for all sources have been made for all years. For more detailed data of the EDGAR 4.1 dataset, including the complete period 1970-2005 and preliminary estimates for recent years we refer to the EDGAR version 4 website at edgar.jrc.ec.europa.eu. Aggregated preliminary estimates can also be found at PBL (2009).

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TOTAL GREENHOUSE-GAS EMISSIONS

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World *	20 964.8	377.5	728.5	5 378.5	27 449.3	77.8%	2 319.6	3 195.4	1 057.3	308.9	6 881.2	33.7%
<i>Annex I Parties</i>	<i>13 904.8</i>	<i>156.7</i>	<i>360.9</i>	<i>212.8</i>	<i>14 635.2</i>	<i>96.1%</i>	<i>1 131.3</i>	<i>842.0</i>	<i>544.9</i>	<i>28.9</i>	<i>2 547.0</i>	<i>44.4%</i>
<i>Annex II Parties</i>	<i>9 801.0</i>	<i>79.7</i>	<i>226.6</i>	<i>144.4</i>	<i>10 251.7</i>	<i>96.4%</i>	<i>454.5</i>	<i>541.5</i>	<i>436.9</i>	<i>14.0</i>	<i>1 446.8</i>	<i>31.4%</i>
<i>North America</i>	<i>5 301.0</i>	<i>31.0</i>	<i>60.5</i>	<i>89.1</i>	<i>5 481.7</i>	<i>97.3%</i>	<i>284.1</i>	<i>191.7</i>	<i>225.0</i>	<i>7.9</i>	<i>708.7</i>	<i>40.1%</i>
<i>Europe</i>	<i>3 153.6</i>	<i>33.9</i>	<i>108.3</i>	<i>16.8</i>	<i>3 312.6</i>	<i>96.2%</i>	<i>138.9</i>	<i>210.8</i>	<i>177.0</i>	<i>2.1</i>	<i>528.8</i>	<i>26.3%</i>
<i>Pacific</i>	<i>1 346.4</i>	<i>14.8</i>	<i>57.8</i>	<i>38.5</i>	<i>1 457.4</i>	<i>93.4%</i>	<i>31.5</i>	<i>139.0</i>	<i>34.9</i>	<i>4.0</i>	<i>209.3</i>	<i>15.0%</i>
<i>Annex I EIT</i>	<i>3 976.9</i>	<i>72.8</i>	<i>122.5</i>	<i>67.6</i>	<i>4 239.9</i>	<i>95.5%</i>	<i>668.8</i>	<i>276.0</i>	<i>96.6</i>	<i>14.8</i>	<i>1 056.3</i>	<i>63.3%</i>
<i>Non-Annex I Parties</i>	<i>6 447.1</i>	<i>220.8</i>	<i>367.5</i>	<i>5 165.7</i>	<i>12 201.1</i>	<i>54.6%</i>	<i>1 187.4</i>	<i>2 353.4</i>	<i>512.3</i>	<i>280.1</i>	<i>4 333.3</i>	<i>27.4%</i>
<i>Annex I Kyoto Parties</i>	<i>8 785.3</i>	<i>126.8</i>	<i>294.6</i>	<i>144.0</i>	<i>9 350.7</i>	<i>95.3%</i>	<i>863.0</i>	<i>630.4</i>	<i>328.5</i>	<i>23.7</i>	<i>1 845.6</i>	<i>46.8%</i>
Int. marine bunkers	354.8	-	-	-	354.8	100.0%	0.9	-	-	-	0.9	-
Int. aviation bunkers	258.2	-	-	-	258.2	100.0%	0.0	-	-	-	0.0	-
Non-OECD Total	9 307.4	282.3	440.6	5 203.5	15 233.7	63.0%	1 726.0	2 521.1	570.4	293.0	5 110.5	33.8%
OECD Total	11 044.5	95.2	287.9	175.0	11 602.6	96.0%	592.7	674.3	486.9	15.9	1 769.8	33.5%
Canada	432.3	5.3	7.8	23.4	468.9	93.3%	24.9	18.9	21.8	2.8	68.3	36.4%
Mexico	264.9	3.2	15.7	26.4	310.1	86.4%	32.3	52.4	15.3	1.5	101.5	31.8%
United States	4 868.7	25.7	52.7	65.7	5 012.8	97.6%	259.2	172.8	203.3	5.2	640.4	40.5%
OECD N. America	5 565.9	34.2	76.2	115.5	5 791.8	96.7%	316.4	244.2	240.3	9.4	810.3	39.0%
Australia	260.1	3.4	5.0	18.9	287.3	91.7%	23.8	74.9	13.2	3.4	115.3	20.6%
Japan	1 064.4	11.1	52.4	19.2	1 147.1	93.8%	6.8	40.5	19.5	0.5	67.4	10.2%
Korea	229.3	1.5	16.2	0.0	247.1	93.4%	8.8	15.0	7.5	0.1	31.3	28.0%
New Zealand	22.0	0.3	0.4	0.4	23.0	96.7%	0.9	23.6	2.2	0.0	26.7	3.2%
OECD Pacific	1 575.7	16.3	74.0	38.5	1 704.5	93.4%	40.2	154.0	42.4	4.0	240.6	16.7%
Austria	56.5	0.5	3.4	0.1	60.4	94.3%	2.0	5.0	3.0	0.1	10.0	20.2%
Belgium	107.9	1.3	4.6	0.2	114.0	95.8%	2.6	6.6	3.6	0.0	12.9	20.5%
Czech Republic	155.1	3.9	4.0	1.2	164.2	96.8%	8.3	8.9	1.9	0.1	19.3	43.2%
Denmark	50.4	0.3	1.1	0.6	52.4	96.9%	0.6	5.5	1.9	-	8.0	7.6%
Finland	54.4	0.1	1.0	0.9	56.4	96.6%	0.7	2.6	6.8	0.0	10.0	6.6%
France	352.3	4.1	13.9	3.6	373.9	95.3%	23.4	40.7	13.2	0.1	77.5	30.2%
Germany	950.4	13.0	23.8	2.4	989.6	97.4%	43.8	41.8	36.6	0.2	122.5	35.8%
Greece	70.1	0.1	6.0	0.5	76.7	91.5%	1.8	3.7	1.5	0.1	7.1	25.2%
Hungary	66.7	0.5	2.4	0.1	69.8	96.4%	2.2	5.3	2.5	0.0	10.1	21.4%
Iceland	1.9	-	0.1	0.0	1.9	97.1%	0.0	0.2	0.1	0.0	0.3	2.1%
Ireland	29.8	-	0.9	0.4	31.1	95.9%	1.2	10.8	1.4	0.0	13.4	8.9%
Italy	397.4	3.8	19.8	1.3	422.3	95.0%	8.5	21.0	17.3	0.3	47.1	18.1%
Luxembourg	10.5	-	0.5	-	11.0	95.1%	0.1	0.8	0.1	0.0	1.0	10.2%
Netherlands	155.8	1.4	0.8	0.2	158.2	99.4%	6.7	11.6	12.2	0.1	30.6	21.9%
Norway	28.3	1.3	0.7	1.1	31.4	94.2%	6.1	2.2	3.1	0.1	11.5	53.1%
Poland	343.8	1.9	8.4	2.2	356.4	97.0%	77.6	22.8	9.9	0.1	110.4	70.3%
Portugal	39.3	0.2	3.4	0.1	43.1	91.8%	0.8	4.3	4.7	0.1	9.9	7.9%
Slovak Republic	56.7	0.2	2.7	0.0	59.7	95.4%	1.1	4.0	1.4	0.0	6.5	17.3%
Spain	205.8	1.9	13.9	0.9	222.5	93.3%	5.4	17.7	8.6	0.8	32.5	16.7%
Sweden	52.8	0.9	1.7	0.5	55.9	96.0%	1.1	3.4	6.7	0.0	11.2	9.4%
Switzerland	40.7	0.0	2.5	1.7	45.0	90.6%	1.1	3.7	0.8	0.1	5.7	19.3%
Turkey	126.9	4.2	11.8	0.7	143.7	91.3%	7.9	24.5	11.4	0.0	43.9	18.1%
United Kingdom	549.3	5.0	10.2	2.3	566.8	97.8%	33.0	29.1	55.4	0.1	117.6	28.0%
OECD Europe	3 902.9	44.7	137.7	21.0	4 106.3	96.1%	236.1	276.2	204.2	2.5	718.9	32.8%
<i>European Union - 27</i>	<i>4 053.5</i>	<i>40.8</i>	<i>138.5</i>	<i>18.4</i>	<i>4 251.2</i>	<i>96.3%</i>	<i>245.7</i>	<i>278.3</i>	<i>204.2</i>	<i>2.4</i>	<i>730.6</i>	<i>33.6%</i>

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO₂ emissions from fuel combustion. EDGAR 4 database for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total		
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
238.8	239.8	1 820.8	542.4	2 841.9	8.4%	75.8	117.0	133.0	37 498.3	63.7%	World *
146.8	218.7	623.6	157.5	1 146.6	12.8%	61.5	88.1	102.7	18 581.2	82.6%	Annex I Parties
115.2	168.6	408.9	107.8	800.5	14.4%	56.5	66.6	95.6	12 717.7	82.2%	Annex II Parties
76.0	56.4	170.1	51.7	354.2	21.5%	29.6	29.4	46.5	6 650.1	85.6%	North America
30.0	101.0	168.2	37.7	336.9	8.9%	17.1	26.4	34.2	4 255.9	78.9%	Europe
9.2	11.2	70.6	18.4	109.4	8.5%	9.8	10.9	14.9	1 811.6	77.4%	Pacific
27.6	50.0	192.4	47.1	317.1	8.7%	5.0	20.9	5.1	5 644.4	84.1%	Annex I EIT
86.5	21.1	1 197.2	370.2	1 675.0	5.2%	14.3	28.9	30.3	18 283.0	43.4%	Non-Annex I Parties
73.0	171.8	435.7	109.1	789.6	9.2%	32.3	66.7	58.1	12 143.1	81.1%	Annex I Kyoto Parties
2.9	-	-	2.0	5.0	0.6	-	-	-	360.6	99.4%	Int. marine bunkers
2.6	-	-	12.7	15.2	0.2	-	-	-	273.5	95.4%	Int. aviation bunkers
104.6	59.0	1 321.2	404.1	1 888.9	5.5%	15.9	47.4	30.9	22 327.2	51.1%	Non-OECD Total
128.7	180.9	499.7	123.6	932.8	13.8%	60.0	69.7	102.1	14 537.0	81.6%	OECD Total
7.0	11.8	17.0	6.7	42.5	16.5%	0.4	8.6	3.9	592.7	79.2%	Canada
2.2	1.0	31.1	4.8	39.1	5.5%	1.6	0.5	0.9	453.7	66.7%	Mexico
69.1	44.6	153.1	44.9	311.7	22.2%	29.2	20.8	42.6	6 057.5	86.2%	United States
78.2	57.4	201.1	56.4	393.2	19.9%	31.2	30.0	47.3	7 103.8	84.4%	OECD N. America
2.7	0.8	51.0	8.6	63.0	4.2%	0.6	3.9	0.4	470.5	61.6%	Australia
6.3	10.3	9.7	9.5	35.9	17.6%	9.2	6.1	14.5	1 280.0	85.0%	Japan
1.6	1.1	4.9	2.4	10.1	15.7%	1.9	0.8	3.5	294.6	81.9%	Korea
0.3	-	9.9	0.3	10.5	2.4%	0.0	0.9	0.0	61.1	38.2%	New Zealand
10.8	12.3	75.5	20.8	119.4	9.1%	11.7	11.6	18.4	2 106.3	78.0%	OECD Pacific
0.6	0.9	2.9	0.7	5.1	12.5%	0.0	1.0	0.6	77.2	77.3%	Austria
0.7	3.9	3.3	1.1	9.1	8.1%	0.0	0.0	0.3	136.2	82.6%	Belgium
1.9	1.3	5.2	1.5	9.9	19.4%	0.0	0.0	0.0	193.4	87.5%	Czech Republic
0.5	1.1	5.8	0.6	8.0	6.0%	0.0	0.0	0.3	68.6	75.5%	Denmark
1.4	1.5	3.8	0.7	7.4	18.9%	0.0	0.0	0.1	73.9	76.5%	Finland
3.6	26.7	35.5	4.8	70.6	5.1%	4.7	1.6	3.7	531.9	72.1%	France
11.1	21.8	33.6	7.8	74.3	15.0%	2.6	4.4	22.2	1 215.6	83.8%	Germany
0.8	0.7	4.5	1.2	7.2	11.5%	0.5	1.7	0.1	93.4	78.0%	Greece
0.7	3.2	5.4	0.8	10.1	6.7%	0.0	0.7	0.0	90.7	77.3%	Hungary
0.0	0.0	0.3	0.0	0.4	6.0%	-	1.0	0.0	3.7	51.4%	Iceland
0.2	0.9	6.6	0.3	8.2	3.0%	0.0	0.0	0.0	52.7	59.3%	Ireland
2.3	7.2	15.6	5.2	30.3	7.8%	2.0	0.9	1.6	504.1	81.7%	Italy
0.0	-	0.3	0.1	0.4	12.2%	0.0	0.0	-	12.4	85.7%	Luxembourg
0.7	7.2	7.2	1.3	16.4	4.3%	2.8	3.1	0.5	211.5	77.9%	Netherlands
0.4	2.1	1.9	0.5	4.9	8.1%	-	6.3	2.3	56.4	64.0%	Norway
2.1	4.7	19.0	3.1	28.8	7.1%	0.0	0.4	0.1	496.2	85.7%	Poland
0.5	0.5	2.9	0.9	4.8	11.1%	0.0	0.0	0.1	57.9	70.5%	Portugal
1.1	0.8	2.9	0.5	5.3	20.9%	-	0.1	-	71.6	82.7%	Slovak Republic
1.9	3.0	15.5	4.5	24.9	7.6%	2.0	3.8	0.4	286.0	75.2%	Spain
1.0	0.8	4.0	0.9	6.8	15.0%	0.0	0.7	0.2	74.7	74.6%	Sweden
0.4	0.2	1.6	0.6	2.9	15.0%	0.0	0.3	0.8	54.6	77.4%	Switzerland
3.9	0.2	22.3	2.7	29.0	13.6%	-	0.5	2.0	219.2	65.2%	Turkey
3.5	22.6	22.8	6.4	55.3	6.3%	2.6	1.6	1.1	745.0	79.3%	United Kingdom
39.7	111.1	223.0	46.4	420.2	9.4%	17.1	28.1	36.3	5 326.9	79.3%	OECD Europe
37.5	115.8	224.8	45.9	424.1	8.8%	17.1	22.6	31.3	5 476.9	79.9%	European Union - 27

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	9 307.4	282.3	440.6	5 203.5	15 233.7	63.0%	1 726.0	2 521.1	570.4	293.0	5 110.5	33.8%
Algeria	51.7	8.9	3.0	0.1	63.6	95.2%	33.9	3.7	3.1	0.0	40.7	83.3%
Angola	4.0	1.8	0.1	562.9	568.9	1.0%	5.1	13.1	1.1	30.3	49.5	10.2%
Benin	0.3	0.0	0.1	36.8	37.2	0.7%	0.5	1.8	0.5	2.0	4.8	10.6%
Botswana	2.9	-	-	-	2.9	100.0%	0.3	5.3	0.2	0.1	5.8	5.6%
Cameroon	2.7	0.0	0.3	62.2	65.2	4.1%	1.1	7.4	1.6	3.4	13.5	8.2%
Congo	0.7	0.2	0.0	49.7	50.6	1.8%	0.9	2.3	0.3	2.7	6.2	14.5%
Dem. Rep. of Congo	3.0	0.0	0.3	1 186.0	1 189.3	0.2%	4.0	24.7	4.0	63.9	96.6	4.1%
Côte d'Ivoire	2.6	0.0	0.2	128.5	131.3	2.0%	0.8	2.1	1.5	6.9	11.2	6.9%
Egypt	79.2	2.4	6.7	0.9	89.3	91.4%	11.2	10.6	6.0	0.0	27.8	40.3%
Eritrea	-	-	0.0	-	0.0	0.0%	0.1	1.5	0.3	-	1.9	6.8%
Ethiopia	2.2	-	0.2	0.0	2.4	92.6%	3.1	32.1	4.2	-	39.3	7.8%
Gabon	0.9	3.4	0.1	4.1	8.4	51.2%	7.6	0.1	0.2	0.2	8.1	94.1%
Ghana	2.7	-	0.3	12.6	15.6	17.3%	1.3	3.5	1.7	0.7	7.2	17.8%
Kenya	5.5	-	0.9	0.0	6.4	85.7%	2.5	13.3	2.1	-	18.0	13.9%
Libyan Arab Jamahiriya	27.4	7.4	1.5	0.1	36.2	95.8%	20.6	1.1	0.8	0.0	22.5	91.6%
Morocco	19.6	-	2.5	0.2	22.3	87.9%	0.9	5.4	2.9	-	9.1	9.4%
Mozambique	1.1	-	0.0	14.1	15.2	7.1%	1.3	7.2	1.5	0.9	10.9	12.2%
Namibia	-	-	0.0	-	0.0	0.0%	0.0	3.3	0.1	-	3.4	0.4%
Nigeria	29.2	38.6	1.4	8.3	77.4	87.5%	86.4	21.8	8.8	0.4	117.5	73.6%
Senegal	2.0	-	0.2	-	2.2	90.1%	0.7	3.6	1.0	-	5.3	13.1%
South Africa	254.7	14.4	4.4	2.3	275.8	97.6%	22.1	19.1	8.4	1.6	51.2	43.1%
Sudan	5.5	-	0.1	-	5.6	98.6%	2.7	37.8	2.9	-	43.4	6.2%
United Rep. of Tanzania	1.7	0.0	0.3	44.5	46.6	3.7%	2.0	19.1	2.3	2.4	25.8	7.8%
Togo	0.6	-	0.2	7.3	8.1	7.0%	0.5	1.5	0.4	0.4	2.8	18.4%
Tunisia	12.1	0.0	2.5	0.1	14.7	82.5%	1.1	1.8	1.0	0.0	4.0	28.8%
Zambia	2.6	-	0.4	138.6	141.5	1.8%	0.9	17.8	0.8	7.5	26.9	3.2%
Zimbabwe	16.0	0.1	0.4	-	16.5	97.4%	1.2	8.0	0.9	0.0	10.1	11.6%
Other Africa	14.9	-	0.5	243.1	258.4	5.8%	9.9	101.2	11.2	13.3	135.5	7.3%
Africa	545.6	77.2	26.7	2 502.3	3 151.8	19.8%	222.7	370.0	69.8	136.6	799.1	27.9%
Bahrain	11.7	0.0	0.1	-	11.8	99.4%	1.6	0.0	0.1	0.0	1.8	90.0%
Islamic Rep. of Iran	180.2	22.3	7.3	0.3	210.1	96.4%	60.9	17.7	7.9	0.0	86.5	70.4%
Iraq	52.8	8.2	6.1	-	67.2	90.9%	23.2	3.3	2.9	0.0	29.4	78.9%
Israel	33.1	-	1.5	0.1	34.7	95.5%	0.1	0.7	1.1	0.0	1.9	6.3%
Jordan	9.2	-	0.8	0.0	10.0	91.8%	0.1	0.3	0.4	-	0.8	11.8%
Kuwait	24.3	1.5	0.4	-	26.2	98.4%	5.9	0.1	0.6	0.0	6.6	90.6%
Lebanon	6.4	-	0.4	-	6.8	93.7%	0.1	0.2	0.4	-	0.7	9.7%
Oman	9.9	1.5	0.0	-	11.4	99.7%	5.5	0.3	0.2	-	6.1	90.9%
Qatar	14.5	0.1	0.1	-	14.6	99.1%	2.9	0.1	0.2	0.0	3.2	90.6%
Saudi Arabia	161.3	1.3	5.6	0.0	168.2	96.6%	23.8	1.8	3.0	0.1	28.8	82.8%
Syrian Arab Republic	31.0	4.1	1.4	0.0	36.5	96.1%	10.1	2.6	1.3	0.0	14.0	72.0%
United Arab Emirates	51.6	2.2	1.5	-	55.3	97.3%	14.1	0.3	0.4	-	14.7	95.4%
Yemen	6.4	0.0	0.5	-	7.0	92.6%	0.6	2.2	1.0	-	3.8	15.6%
Middle East	592.5	41.2	25.8	0.4	660.0	96.0%	148.8	29.5	19.7	0.1	198.2	75.1%
Albania	6.2	0.1	0.3	0.1	6.6	95.0%	0.8	1.6	0.2	0.0	2.5	31.0%
Bosnia-Herzegovina	23.6	0.7	0.2	0.0	24.5	99.2%	4.1	1.6	0.2	0.0	5.9	68.9%
Bulgaria	74.9	1.1	4.1	0.0	80.2	94.8%	1.3	5.5	7.6	0.1	14.5	8.9%
Croatia	21.6	3.2	1.3	-	26.1	95.2%	7.6	1.8	0.4	0.0	9.8	77.4%
Cyprus	3.8	-	0.5	0.0	4.3	88.8%	0.0	0.2	0.2	-	0.4	3.1%
Gibraltar	0.2	-	-	0.0	0.2	99.8%	0.0	-	0.0	-	0.0	12.2%
FYR of Macedonia	8.5	0.3	0.3	0.0	9.1	96.8%	0.9	1.1	0.2	0.0	2.2	39.0%
Malta	2.3	-	0.0	-	2.3	99.8%	0.0	0.1	0.1	-	0.1	2.3%
Romania	167.1	0.5	7.6	0.7	175.8	95.3%	18.0	15.7	3.8	0.0	37.5	48.1%
Serbia	61.4	3.6	2.1	0.0	67.1	96.9%	11.4	6.2	1.2	0.0	18.9	60.7%
Slovenia	12.5	0.0	0.7	-	13.2	94.9%	1.0	1.4	1.1	0.0	3.5	28.4%
Non-OECD Europe	382.2	9.4	17.0	0.8	409.4	95.7%	45.0	35.1	14.9	0.2	95.3	47.3%

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total		
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
104.6	59.0	1 321.2	404.1	1 888.9	5.5%	15.9	47.4	30.9	22 327.2	51.1%	Non-OECD Total
0.3	0.4	2.5	0.7	3.8	7.2%	-	-	0.3	108.5	87.3%	Algeria
0.1	-	16.3	25.2	41.7	0.2%	-	-	-	660.1	1.7%	Angola
0.1	-	1.9	1.7	3.7	2.4%	-	-	-	45.7	1.9%	Benin
0.0	-	5.0	0.5	5.5	0.5%	-	-	-	14.3	23.0%	Botswana
0.1	-	7.2	3.2	10.5	1.3%	-	0.9	-	90.2	4.4%	Cameroon
0.0	-	2.1	2.2	4.3	0.5%	-	-	-	61.2	3.0%	Congo
0.7	-	33.0	53.4	87.1	0.8%	-	-	-	1 373.0	0.6%	Dem. Rep. of Congo
0.2	-	1.7	5.6	7.5	2.0%	-	-	-	150.1	2.4%	Côte d'Ivoire
0.5	1.4	8.4	1.5	11.8	3.9%	-	1.3	0.8	131.0	71.2%	Egypt
0.0	-	1.0	0.0	1.0	2.7%	-	-	-	2.9	5.3%	Eritrea
0.7	-	23.5	1.4	25.5	2.6%	-	-	-	67.3	8.8%	Ethiopia
0.0	-	0.1	0.2	0.3	8.6%	-	-	-	16.8	71.1%	Gabon
0.2	-	3.9	1.0	5.2	4.7%	-	0.6	-	28.7	14.8%	Ghana
0.4	-	8.5	0.4	9.2	3.9%	-	-	-	33.6	24.9%	Kenya
0.1	-	0.8	0.3	1.2	9.0%	-	-	0.3	60.2	92.1%	Libyan Arab Jamahiriya
0.2	-	4.4	0.6	5.2	3.4%	-	-	-	36.6	56.4%	Morocco
0.2	-	8.9	1.7	10.9	2.3%	-	-	-	37.0	7.2%	Mozambique
0.1	-	2.4	0.1	2.6	2.2%	-	-	-	6.0	1.1%	Namibia
1.2	-	15.7	2.3	19.2	6.0%	-	-	0.2	214.2	72.5%	Nigeria
0.1	-	2.6	0.3	3.0	3.1%	-	-	-	10.5	26.7%	Senegal
1.9	1.0	13.5	4.9	21.3	9.1%	0.0	0.4	1.1	349.7	83.8%	South Africa
0.3	-	33.7	2.6	36.7	0.9%	-	-	-	85.6	10.0%	Sudan
0.3	-	17.8	3.4	21.5	1.6%	-	-	-	93.8	4.3%	United Rep. of Tanzania
0.1	-	1.6	0.5	2.2	3.4%	-	-	-	13.0	8.8%	Togo
0.1	0.4	1.2	0.2	2.0	6.9%	-	-	-	20.6	64.9%	Tunisia
0.2	0.5	26.8	8.2	35.7	0.4%	-	-	-	204.1	1.8%	Zambia
0.2	-	6.1	0.9	7.3	3.3%	-	-	-	33.9	51.6%	Zimbabwe
1.8	-	89.2	18.1	109.0	1.7%	-	-	-	503.0	5.3%	Other Africa
10.1	3.7	339.8	141.2	494.8	2.0%	0.0	3.2	2.7	4 451.7	19.2%	Africa
0.0	-	0.0	0.0	0.0	28.8%	-	2.5	-	16.2	82.6%	Bahrain
2.0	0.3	14.5	2.1	18.9	10.4%	-	0.2	2.4	318.1	83.4%	Islamic Rep. of Iran
0.2	-	3.0	0.6	3.8	5.7%	-	-	0.3	100.7	83.9%	Iraq
0.1	-	0.7	0.4	1.3	10.7%	0.0	0.0	1.0	38.9	85.8%	Israel
0.0	-	0.3	0.2	0.5	6.4%	-	-	-	11.4	82.2%	Jordan
0.1	-	0.0	0.2	0.3	25.6%	0.0	-	0.3	33.3	95.6%	Kuwait
0.0	-	0.2	0.1	0.4	8.7%	-	-	-	7.9	82.4%	Lebanon
0.0	-	0.2	0.0	0.3	10.8%	-	-	-	17.8	95.2%	Oman
0.0	-	0.0	0.0	0.1	22.2%	-	-	-	18.0	97.2%	Qatar
0.5	-	3.1	1.9	5.5	9.4%	0.0	-	2.5	205.0	91.2%	Saudi Arabia
0.2	0.2	3.2	0.5	4.1	5.0%	-	-	-	54.6	83.0%	Syrian Arab Republic
0.1	-	0.2	0.3	0.7	17.9%	-	0.4	0.5	71.6	95.1%	United Arab Emirates
0.1	-	1.8	0.2	2.1	2.7%	-	-	-	12.9	55.2%	Yemen
3.4	0.5	27.4	6.6	37.9	9.0%	0.0	3.2	6.9	906.2	86.7%	Middle East
0.0	-	1.1	0.2	1.3	3.0%	-	-	-	10.4	68.2%	Albania
0.9	-	0.9	0.2	2.0	43.9%	-	0.6	-	33.0	88.6%	Bosnia-Herzegovina
0.6	2.3	5.7	0.8	9.4	6.6%	-	0.0	-	104.1	74.9%	Bulgaria
0.4	0.9	2.2	0.3	3.8	10.0%	-	0.9	-	40.5	80.9%	Croatia
0.0	-	0.2	0.0	0.2	6.5%	-	-	-	5.0	77.2%	Cyprus
0.0	-	-	0.0	0.0	21.7%	-	-	-	0.2	95.6%	Gibraltar
0.1	-	0.6	0.2	0.9	14.3%	-	-	-	12.2	80.2%	FYR of Macedonia
0.0	-	0.0	0.0	0.1	11.9%	-	-	-	2.5	92.3%	Malta
0.9	4.9	13.4	1.5	20.6	4.2%	-	2.0	0.0	235.9	79.0%	Romania
0.5	0.7	3.3	0.6	5.0	9.0%	0.0	0.8	0.2	92.0	83.6%	Serbia
0.1	-	1.0	0.2	1.3	9.5%	-	0.8	0.0	18.7	72.7%	Slovenia
3.5	8.8	28.4	4.0	44.7	7.9%	0.0	5.0	0.2	554.6	79.4%	Non-OECD Europe

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Armenia	20.5	-	0.7	0.0	21.2	96.5%	1.3	1.3	0.3	0.0	2.9	45.4%
Azerbaijan	63.2	3.1	0.5	0.1	66.8	99.1%	11.7	4.3	1.4	0.0	17.4	67.5%
Belarus	124.0	0.0	1.8	2.3	128.1	96.8%	1.1	14.3	1.7	0.0	17.1	6.5%
Estonia	36.0	0.1	0.6	0.1	36.8	98.1%	1.2	1.7	0.5	-	3.3	35.8%
Georgia	28.7	0.0	0.2	0.1	29.0	98.9%	1.7	2.6	0.7	0.0	5.0	34.5%
Kazakhstan	236.4	0.6	4.8	16.0	257.8	91.9%	30.9	25.6	2.1	6.3	64.8	47.7%
Kyrgyzstan	22.5	0.0	0.7	0.2	23.4	96.1%	0.7	4.3	0.6	0.2	5.8	12.3%
Latvia	18.6	-	0.7	0.0	19.3	96.6%	1.6	3.2	0.5	0.0	5.4	30.6%
Lithuania	33.1	-	1.8	0.1	35.0	94.6%	1.6	4.9	1.9	0.0	8.4	19.4%
Republic of Moldova	30.2	-	1.2	0.1	31.5	95.8%	1.4	2.2	0.5	0.0	4.1	34.8%
Russian Federation	2 178.8	26.8	65.2	57.9	2 328.6	94.7%	488.2	132.5	54.0	14.1	688.9	70.9%
Tajikistan	10.9	0.0	0.6	0.0	11.5	94.8%	0.8	2.9	0.6	0.0	4.3	18.4%
Turkmenistan	46.6	0.1	0.6	0.2	47.5	98.3%	26.0	2.8	0.6	0.0	29.5	88.4%
Ukraine	687.9	34.5	21.2	3.0	746.7	96.7%	58.0	54.1	9.5	0.2	121.8	47.6%
Uzbekistan	119.8	0.0	3.5	0.5	123.8	96.8%	16.1	13.2	2.6	0.0	31.9	50.5%
Former Soviet Union	3 657.1	65.2	104.2	80.6	3 907.1	95.3%	642.5	269.7	77.5	20.9	1 010.6	63.6%
Argentina	100.4	7.0	1.6	16.8	125.8	85.3%	22.8	78.2	7.1	2.9	111.0	20.6%
Bolivia	5.4	0.8	0.2	149.1	155.5	4.0%	3.8	11.2	0.9	7.3	23.2	16.5%
Brazil	194.3	6.8	15.9	891.3	1 108.3	18.1%	21.1	208.6	41.4	43.7	314.7	6.7%
Chile	32.0	0.6	1.9	0.8	35.3	92.3%	3.1	5.8	3.0	0.2	12.1	26.0%
Colombia	45.0	1.4	3.9	51.8	102.1	45.5%	7.9	36.1	4.7	2.5	51.2	15.4%
Costa Rica	2.6	-	0.2	0.0	2.9	91.0%	0.2	3.2	0.4	-	3.8	4.1%
Cuba	27.6	0.9	1.8	1.1	31.4	90.8%	1.2	8.2	2.6	0.1	12.0	9.8%
Dominican Republic	7.7	-	0.5	0.3	8.5	90.2%	0.3	4.2	1.2	0.0	5.9	5.9%
Ecuador	13.2	1.7	0.8	0.5	16.2	91.8%	4.5	7.3	1.3	0.0	13.1	34.4%
El Salvador	2.2	-	0.3	0.2	2.6	82.4%	0.3	1.6	0.7	-	2.7	11.5%
Guatemala	3.3	0.0	0.5	3.8	7.5	43.8%	0.7	2.8	1.0	0.2	4.8	15.5%
Haiti	0.9	-	0.2	-	1.1	83.1%	0.4	1.7	0.9	-	3.0	13.4%
Honduras	2.1	-	0.1	1.9	4.1	51.4%	0.3	2.9	0.5	0.2	3.9	8.6%
Jamaica	7.2	-	0.3	-	7.4	96.6%	0.1	0.6	0.4	-	1.1	11.9%
Netherlands Antilles	2.7	-	-	-	2.7	100.0%	0.1	0.0	0.0	-	0.1	56.4%
Nicaragua	1.8	-	0.1	0.0	1.9	96.6%	0.3	3.8	0.7	-	4.8	5.3%
Panama	2.5	-	0.1	-	2.6	94.4%	0.1	2.3	0.4	-	2.8	4.5%
Paraguay	1.9	-	0.2	37.0	39.2	4.9%	0.6	11.8	0.7	2.0	15.1	3.7%
Peru	19.2	0.4	1.0	19.0	39.6	49.6%	2.1	7.9	3.0	0.9	14.0	15.2%
Trinidad and Tobago	11.4	2.5	0.2	-	14.1	98.4%	7.0	0.1	0.6	0.0	7.6	91.2%
Uruguay	3.7	0.0	0.2	0.0	4.0	94.2%	0.1	15.0	0.7	-	15.8	0.7%
Venezuela	105.1	7.9	2.7	36.3	152.0	74.3%	32.6	19.3	4.0	1.8	57.8	56.5%
Other Latin America	12.4	0.0	1.0	15.9	29.3	42.5%	0.2	2.6	1.8	0.8	5.4	3.4%
Latin America	604.6	30.1	33.6	1 225.9	1 894.2	33.5%	109.9	435.1	78.0	62.6	685.6	16.0%
Bangladesh	13.6	-	0.2	8.7	22.4	60.5%	5.4	69.4	11.6	0.4	86.8	6.3%
Brunei Darussalam	3.4	0.1	0.0	10.3	13.8	24.9%	3.1	0.0	0.1	0.5	3.7	84.0%
Cambodia	-	-	-	0.0	0.0	0.0%	1.0	13.1	0.8	-	15.0	6.8%
Chinese Taipei	114.7	1.2	8.3	0.5	124.7	92.9%	1.0	1.4	3.9	0.0	6.3	16.2%
India	591.0	19.3	22.0	48.4	680.6	89.7%	82.1	366.9	77.0	2.5	528.4	15.5%
Indonesia	140.5	9.2	7.7	411.5	569.0	26.3%	47.5	84.3	26.2	18.4	176.5	26.9%
DPR of Korea	114.0	2.0	7.5	0.4	124.0	93.6%	12.2	5.6	2.7	0.9	21.4	57.1%
Malaysia	48.9	3.1	2.8	92.0	146.8	35.5%	13.8	6.8	3.0	4.6	28.2	48.8%
Mongolia	12.7	-	0.3	0.2	13.2	96.1%	0.6	6.4	0.2	1.0	8.2	7.5%
Myanmar	4.0	0.0	0.2	736.0	740.2	0.5%	2.6	38.9	4.5	37.4	83.4	3.1%
Nepal	0.9	-	0.1	0.2	1.1	77.7%	1.2	17.3	1.7	0.0	20.2	6.0%
Pakistan	59.1	0.6	3.6	0.1	63.4	94.1%	15.1	65.2	10.8	0.0	91.2	16.6%
Philippines	39.5	0.0	3.0	2.6	45.1	87.6%	2.5	28.6	9.0	0.2	40.3	6.2%
Singapore	28.8	0.2	0.9	0.1	30.0	96.8%	0.4	0.1	0.5	0.0	0.9	38.9%
Sri Lanka	3.7	-	0.3	0.5	4.5	82.9%	0.6	8.6	2.3	0.0	11.5	5.0%
Thailand	78.6	0.0	8.7	10.8	98.1	80.2%	8.4	61.2	8.6	0.5	78.8	10.7%
Vietnam	17.3	0.0	1.7	0.8	19.8	87.3%	5.4	46.8	7.0	0.0	59.2	9.1%
Other Asia	10.2	0.0	0.2	34.0	44.5	23.1%	2.2	15.7	3.3	1.6	22.8	9.6%
Asia	1 280.8	35.9	67.3	1 357.2	2 741.2	48.0%	205.2	836.1	173.3	68.3	1 282.8	16.0%
People's Rep. of China	2 211.3	22.7	165.2	36.2	2 435.4	91.7%	351.7	545.6	135.7	4.2	1 037.3	33.9%
Hong Kong, China	33.1	0.7	0.8	0.0	34.6	97.5%	0.1	-	1.4	-	1.5	6.0%
China	2 244.4	23.4	166.0	36.2	2 470.0	91.8%	351.8	545.6	137.2	4.2	1 038.8	33.9%

1990 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
0.0	-	0.6	0.2	0.8	4.6%	-	-	-	24.9	87.6%	Armenia
0.1	-	2.1	0.4	2.6	3.9%	-	0.2	-	87.0	89.8%	Azerbaijan
0.9	2.1	12.5	0.8	16.3	5.3%	-	0.0	-	161.5	78.0%	Belarus
0.5	-	1.2	0.2	1.9	24.7%	-	0.0	0.0	42.1	89.8%	Estonia
0.1	0.8	1.6	0.3	2.8	3.4%	-	-	-	36.8	82.9%	Georgia
3.6	-	18.3	10.9	32.7	10.9%	-	-	-	355.4	76.4%	Kazakhstan
0.8	-	2.2	0.6	3.6	21.5%	-	-	-	32.7	73.1%	Kyrgyzstan
0.2	-	2.5	0.3	3.0	7.2%	0.0	0.0	-	27.7	74.0%	Latvia
0.3	-	3.9	0.4	4.5	6.5%	0.0	0.0	-	47.9	73.1%	Lithuania
0.1	-	1.4	0.3	1.7	4.9%	-	-	-	37.3	84.9%	Republic of Moldova
14.5	16.8	84.9	32.2	148.4	9.7%	5.0	15.9	5.0	3 191.8	84.8%	Russian Federation
0.0	-	1.2	0.2	1.4	2.3%	-	2.8	-	20.0	58.7%	Tajikistan
0.1	0.1	1.8	0.2	2.2	3.3%	-	-	-	79.2	92.0%	Turkmenistan
3.6	13.0	32.6	4.4	53.6	6.7%	0.0	0.2	-	922.4	85.0%	Ukraine
0.2	0.2	7.8	1.0	9.1	1.9%	-	-	-	164.9	82.6%	Uzbekistan
24.8	33.0	174.5	52.3	284.7	8.7%	5.0	19.1	5.0	5 231.5	83.9%	Former Soviet Union
0.9	0.1	32.4	5.1	38.4	2.4%	0.2	1.9	0.1	277.6	47.2%	Argentina
0.1	-	7.7	6.8	14.6	0.6%	-	-	-	193.4	5.2%	Bolivia
3.8	4.1	103.3	43.5	154.6	2.4%	1.9	5.0	1.5	1 586.0	14.2%	Brazil
0.3	0.0	4.1	0.8	5.2	5.4%	-	0.0	0.0	52.6	68.5%	Chile
0.6	0.2	16.3	3.1	20.2	3.1%	-	0.0	0.0	173.5	31.7%	Colombia
0.1	0.1	1.5	0.1	1.8	2.8%	-	-	-	8.4	33.4%	Costa Rica
0.8	0.7	7.3	0.6	9.3	8.3%	-	-	-	52.7	57.9%	Cuba
0.1	-	1.7	0.2	2.0	4.9%	-	-	-	16.4	49.5%	Dominican Republic
0.2	-	2.7	0.3	3.2	4.7%	-	-	-	32.5	60.1%	Ecuador
0.1	-	1.1	0.1	1.3	6.2%	-	-	-	6.6	38.9%	El Salvador
0.2	-	1.9	0.4	2.4	7.3%	0.0	-	-	14.7	28.7%	Guatemala
0.0	-	0.8	0.1	0.9	5.4%	-	-	-	5.0	27.8%	Haiti
0.1	-	2.0	0.2	2.3	3.8%	-	-	-	10.4	24.7%	Honduras
0.1	-	0.3	0.1	0.5	13.2%	-	-	-	9.0	81.7%	Jamaica
0.0	-	0.0	0.0	0.0	22.1%	-	-	-	2.9	97.2%	Netherlands Antilles
0.1	-	2.9	0.1	3.0	2.5%	-	-	-	9.7	22.3%	Nicaragua
0.0	-	0.9	0.1	1.0	3.5%	-	-	-	6.4	41.0%	Panama
0.1	-	6.7	2.2	9.0	1.5%	-	-	-	63.3	4.1%	Paraguay
0.2	0.2	3.9	1.3	5.6	4.0%	-	-	-	59.2	37.1%	Peru
0.0	-	0.1	0.1	0.2	16.4%	-	-	-	21.9	95.1%	Trinidad and Tobago
0.1	-	5.9	0.1	6.0	1.5%	-	-	-	25.8	15.4%	Uruguay
0.4	0.0	9.2	2.5	12.1	3.2%	1.0	1.9	0.3	225.1	64.9%	Venezuela
0.1	-	2.5	0.9	3.5	2.6%	-	0.3	0.0	38.4	33.1%	Other Latin America
8.3	5.4	215.2	68.5	297.4	2.8%	3.1	9.1	2.0	2 891.5	26.0%	Latin America
1.3	-	12.2	1.6	15.0	8.4%	-	-	-	124.2	16.3%	Bangladesh
0.0	-	0.1	0.4	0.5	1.2%	-	-	-	18.0	36.3%	Brunei Darussalam
0.2	-	3.4	0.3	3.9	5.3%	-	-	-	18.9	6.5%	Cambodia
0.4	0.5	2.4	0.8	4.0	10.1%	0.0	0.1	2.0	137.1	85.6%	Chinese Taipei
18.4	1.1	121.2	19.0	159.7	11.5%	1.7	2.1	5.8	1 378.4	51.6%	India
3.6	0.1	58.4	23.8	85.9	4.2%	-	0.7	1.1	833.1	24.1%	Indonesia
0.6	-	5.6	2.5	8.7	6.9%	0.0	-	-	154.1	83.6%	DPR of Korea
0.3	-	8.3	4.8	13.3	2.0%	0.0	0.0	0.6	188.9	35.0%	Malaysia
0.1	-	3.3	1.6	5.0	1.8%	-	-	-	26.3	50.7%	Mongolia
0.4	-	8.5	31.7	40.7	1.0%	-	-	-	864.2	0.8%	Myanmar
0.5	-	2.8	0.3	3.6	13.7%	-	-	-	24.9	10.4%	Nepal
2.1	0.6	13.7	2.0	18.4	11.6%	-	-	1.0	174.0	44.2%	Pakistan
0.9	-	7.1	1.6	9.7	9.7%	-	-	0.2	95.3	45.1%	Philippines
0.1	-	0.1	0.3	0.4	16.5%	0.0	0.1	0.4	31.8	92.5%	Singapore
0.2	-	1.2	0.3	1.7	14.1%	-	-	-	17.8	25.7%	Sri Lanka
2.7	-	14.4	2.2	19.4	13.9%	-	-	1.4	197.6	45.4%	Thailand
0.8	-	9.5	1.3	11.6	7.2%	-	-	-	90.7	25.9%	Vietnam
0.4	-	10.5	2.0	12.8	3.2%	-	-	-	80.1	16.1%	Other Asia
33.1	2.4	282.5	96.4	414.4	8.0%	1.7	3.0	12.4	4 455.5	34.9%	Asia
21.2	5.1	253.4	34.7	314.5	6.7%	6.0	4.7	1.4	3 799.3	68.6%	People's Rep. of China
0.1	-	-	0.3	0.4	34.7%	-	-	0.4	37.0	92.0%	Hong Kong, China
21.4	5.1	253.4	35.0	315.0	6.8%	6.0	4.7	1.8	3 836.2	68.8%	China

1995 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World *	21 793.7	374.4	860.8	5 143.2	28 172.1	78.7%	2 278.8	3 110.9	1 103.4	253.2	6 746.3	33.8%
<i>Annex I Parties</i>	13 172.3	153.4	314.7	261.2	13 901.6	95.9%	985.6	738.6	509.1	28.8	2 262.0	43.6%
<i>Annex II Parties</i>	10 199.1	84.9	230.4	234.6	10 749.0	95.7%	451.8	536.5	404.0	24.6	1 416.9	31.9%
<i>North America</i>	5 604.0	38.0	67.8	182.4	5 892.1	95.8%	296.0	207.8	200.2	19.9	723.9	40.9%
<i>Europe</i>	3 136.8	28.1	102.4	14.9	3 282.2	96.4%	122.2	197.1	171.7	1.5	492.5	24.8%
<i>Pacific</i>	1 458.3	18.8	60.2	37.3	1 574.6	93.8%	33.6	131.6	32.1	3.3	200.5	16.7%
<i>Annex I EIT</i>	2 820.6	66.0	68.6	25.9	2 981.1	96.8%	525.5	177.8	88.9	4.1	796.3	66.0%
<i>Non-Annex I Parties</i>	7 924.8	221.0	546.1	4 882.0	13 574.0	60.0%	1 292.1	2 372.4	594.3	224.4	4 483.2	28.8%
<i>Annex I Kyoto Parties</i>	7 819.5	117.9	238.6	238.2	8 414.2	94.3%	709.2	517.6	316.0	27.3	1 570.1	45.2%
Int. marine bunkers	408.7	-	-	-	408.7	100.0%	1.0	-	-	-	1.0	-
Int. aviation bunkers	287.8	-	-	-	287.8	100.0%	0.0	-	-	-	0.0	-
Non-OECD Total	9 542.6	274.4	556.9	4 874.5	15 248.5	64.4%	1 708.8	2 457.8	640.4	226.4	5 033.4	33.9%
OECD Total	11 554.5	100.0	304.0	268.7	12 227.1	95.3%	568.9	653.1	463.0	26.8	1 711.9	33.2%
Canada	465.2	4.9	8.3	161.9	640.4	73.4%	28.8	21.4	25.1	18.5	93.8	30.7%
Mexico	290.9	4.3	15.9	30.7	341.9	86.4%	33.6	51.0	16.8	1.8	103.2	32.5%
United States	5 138.7	33.0	59.5	20.5	5 251.7	98.5%	267.1	186.4	175.1	1.4	630.1	42.4%
OECD N. America	5 894.9	42.3	83.7	213.1	6 234.0	95.2%	329.5	258.8	217.1	21.7	827.1	39.8%
Australia	285.5	2.5	5.0	15.2	308.2	93.4%	26.6	69.1	14.8	2.6	113.1	23.5%
Japan	1 147.9	16.0	54.8	21.6	1 240.3	93.8%	6.1	38.5	15.2	0.5	60.3	10.0%
Korea	358.6	1.8	26.1	0.0	386.6	93.2%	5.1	14.9	10.1	0.1	30.1	16.8%
New Zealand	24.9	0.3	0.4	0.5	26.0	96.7%	0.9	24.1	2.1	0.1	27.2	3.4%
OECD Pacific	1 817.0	20.6	86.3	37.4	1 961.2	93.7%	38.6	146.5	42.2	3.4	230.6	16.7%
Austria	59.4	0.3	3.1	0.1	62.9	94.9%	2.0	4.7	2.8	0.0	9.6	20.9%
Belgium	115.2	0.4	4.7	0.2	120.5	95.9%	2.0	6.7	3.9	0.0	12.7	16.0%
Czech Republic	123.7	3.8	3.1	0.8	131.4	97.0%	6.0	5.0	1.8	0.1	12.8	46.6%
Denmark	58.0	0.4	1.4	0.4	60.2	97.0%	0.8	5.5	1.9	-	8.2	10.1%
Finland	56.0	1.0	0.7	0.7	58.4	97.6%	0.7	2.2	7.2	0.0	10.2	6.6%
France	353.8	4.2	11.5	3.8	373.3	95.9%	22.2	39.0	13.6	0.1	74.9	29.6%
Germany	869.3	4.2	22.1	2.2	897.7	97.3%	34.5	33.6	32.3	0.2	100.6	34.3%
Greece	72.7	0.1	6.6	0.4	79.8	91.2%	1.8	3.7	1.6	0.0	7.1	24.9%
Hungary	57.3	0.9	1.6	0.1	59.9	97.1%	1.7	3.0	2.7	0.0	7.4	23.3%
Iceland	1.9	-	0.0	0.0	2.0	98.0%	0.0	0.2	0.1	0.0	0.3	2.0%
Ireland	32.3	-	0.9	0.3	33.5	96.3%	1.1	11.3	1.6	0.0	14.0	7.8%
Italy	409.4	2.3	18.9	1.3	431.9	95.3%	8.3	18.2	19.7	0.2	46.4	17.9%
Luxembourg	8.2	-	0.4	-	8.6	94.9%	0.1	1.1	0.1	0.0	1.2	8.2%
Netherlands	170.9	1.0	0.9	0.2	173.0	99.4%	6.2	11.4	11.4	0.1	29.0	21.3%
Norway	32.8	1.2	0.9	1.0	35.9	94.7%	9.1	2.3	3.1	0.1	14.6	62.5%
Poland	331.4	1.4	9.1	1.8	343.7	96.8%	61.6	16.4	10.2	0.1	88.2	69.8%
Portugal	48.3	0.4	3.8	0.1	52.5	92.7%	0.8	4.4	5.5	0.1	10.7	7.7%
Slovak Republic	40.8	0.3	2.1	0.0	43.3	95.2%	1.0	2.2	1.3	0.0	4.5	21.8%
Spain	233.3	1.0	13.8	0.9	248.9	94.1%	4.7	17.9	9.0	0.5	32.2	14.7%
Sweden	57.5	1.2	1.7	0.4	60.8	96.7%	1.2	3.5	6.5	0.0	11.2	10.6%
Switzerland	41.0	0.0	2.0	1.0	44.1	93.2%	1.0	3.5	0.8	0.1	5.3	19.0%
Turkey	152.7	2.5	15.7	0.6	171.5	90.5%	8.3	24.2	16.2	0.1	48.8	17.0%
United Kingdom	516.6	10.6	9.0	2.0	538.2	97.9%	25.7	27.9	50.5	0.1	104.3	24.7%
OECD Europe	3 842.6	37.1	134.0	18.2	4 031.9	96.2%	200.8	247.8	203.8	1.7	654.1	30.7%
<i>European Union - 27</i>	3 844.7	35.6	125.3	15.9	4 021.5	96.5%	200.6	236.0	200.0	1.6	638.3	31.4%

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO₂ emissions from fuel combustion. EDGAR 4 database for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

1995 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total		
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
253.7	243.1	1 801.6	535.1	2 833.6	9.0%	128.8	105.7	159.1	38 145.6	64.8%	World *
147.0	211.4	544.2	150.9	1 053.5	14.0%	90.3	82.3	134.3	17 524.0	82.5%	Annex I Parties
124.7	174.1	408.5	118.8	826.1	15.1%	81.3	56.1	122.9	13 252.4	82.0%	Annex II Parties
85.1	62.2	184.8	65.4	397.5	21.4%	44.0	23.9	55.1	7 136.6	84.4%	North America
28.2	100.6	158.0	35.8	322.5	8.7%	21.0	15.6	48.5	4 182.3	79.3%	Europe
11.3	11.4	65.8	17.6	106.1	10.7%	16.3	16.6	19.4	1 933.5	78.7%	Pacific
18.8	32.1	115.0	29.1	195.0	9.6%	8.9	25.7	9.7	4 016.7	85.4%	Annex I EIT
100.7	31.7	1 257.5	367.9	1 757.8	5.7%	38.5	23.5	24.8	19 901.8	47.9%	Non-Annex I Parties
65.4	154.4	351.1	107.2	678.0	9.6%	47.3	65.9	82.1	10 857.7	80.2%	Annex I Kyoto Parties
3.3	-	-	14.3	17.6	0.2	-	-	-	427.3	96.6%	Int. marine bunkers
2.7	-	-	2.0	4.7	0.6	-	-	-	292.5	99.3%	Int. aviation bunkers
108.7	49.6	1 311.8	382.9	1 852.9	5.9%	43.1	46.8	29.7	22 254.4	52.3%	Non-OECD Total
139.1	193.5	489.9	135.9	958.3	14.5%	85.7	59.0	129.4	15 171.4	81.5%	OECD Total
7.5	11.8	20.7	25.3	65.3	11.6%	1.1	8.1	4.5	813.3	62.3%	Canada
2.4	1.7	28.8	5.1	38.1	6.4%	1.9	0.3	0.7	486.1	68.2%	Mexico
77.6	50.4	164.1	40.1	332.2	23.4%	42.9	15.8	50.5	6 323.3	87.2%	United States
87.6	63.9	213.6	70.5	435.6	20.1%	45.9	24.2	55.8	7 622.6	83.4%	OECD N. America
2.9	1.2	46.1	7.3	57.7	5.1%	1.2	1.6	0.5	482.3	65.8%	Australia
8.1	10.1	9.1	9.9	37.3	21.7%	15.0	14.3	18.8	1 386.0	85.0%	Japan
2.4	3.3	5.8	3.7	15.3	15.5%	2.2	1.1	3.8	439.0	83.8%	Korea
0.3	-	10.6	0.3	11.2	2.7%	0.1	0.7	0.1	65.2	40.5%	New Zealand
13.7	14.7	71.6	21.3	121.4	11.3%	18.5	17.7	23.1	2 372.5	79.7%	OECD Pacific
0.7	0.6	2.7	0.7	4.8	15.4%	0.3	0.1	1.0	78.7	79.3%	Austria
0.9	1.0	3.2	1.2	6.3	13.6%	0.2	0.0	0.5	140.2	84.5%	Belgium
2.3	1.2	3.3	1.2	8.0	28.7%	0.1	0.0	0.0	152.3	89.1%	Czech Republic
0.6	0.9	5.3	0.6	7.4	7.9%	0.1	0.0	0.4	76.3	78.3%	Denmark
1.4	1.3	3.4	0.6	6.6	20.7%	0.1	0.0	0.2	75.4	78.3%	Finland
3.6	25.0	33.8	4.7	67.0	5.4%	2.1	1.2	3.5	521.9	73.5%	France
7.7	29.4	30.3	6.6	74.0	10.4%	4.5	1.8	36.0	1 114.5	82.2%	Germany
0.9	0.6	3.9	1.2	6.5	13.2%	0.6	0.7	0.2	95.0	79.5%	Greece
0.4	1.4	3.6	0.7	6.1	7.0%	0.1	0.3	0.0	73.9	81.7%	Hungary
0.0	0.0	0.3	0.0	0.4	7.6%	0.0	0.1	0.0	2.8	71.1%	Iceland
0.3	0.7	7.1	0.3	8.4	3.5%	0.1	0.1	0.1	56.2	59.9%	Ireland
2.8	7.5	14.1	5.3	29.7	9.4%	3.2	0.2	1.9	513.4	82.4%	Italy
0.1	-	0.3	0.1	0.5	14.0%	0.0	0.0	-	10.3	80.6%	Luxembourg
0.9	7.7	7.1	1.2	16.8	5.1%	3.5	2.1	0.6	225.0	79.5%	Netherlands
0.5	1.7	1.9	0.6	4.7	10.2%	0.0	4.2	0.5	60.0	72.7%	Norway
2.5	5.7	17.7	3.1	28.9	8.6%	0.1	0.5	0.2	461.6	86.0%	Poland
0.6	0.5	2.9	1.0	5.1	12.5%	0.1	0.0	0.1	68.5	73.2%	Portugal
0.8	1.0	1.4	0.3	3.5	22.9%	0.0	0.0	-	51.3	83.8%	Slovak Republic
2.2	2.5	15.2	4.6	24.5	9.0%	2.6	3.4	0.6	312.2	77.3%	Spain
1.2	0.7	3.8	0.9	6.6	17.7%	0.1	0.7	0.2	79.6	76.8%	Sweden
0.5	0.1	1.6	0.5	2.7	18.9%	0.2	0.1	0.7	53.0	80.4%	Switzerland
3.6	5.1	20.7	3.0	32.4	11.1%	0.0	0.6	1.7	254.9	65.6%	Turkey
3.5	20.4	21.1	5.6	50.6	7.0%	3.4	1.0	1.9	699.4	79.6%	United Kingdom
37.8	114.8	204.6	44.0	401.3	9.4%	21.3	17.1	50.5	5 176.2	79.6%	OECD Europe
34.9	113.5	193.7	42.7	384.9	9.1%	21.3	13.8	47.5	5 127.3	80.3%	European Union - 27

1995 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	9 542.6	274.4	556.9	4 874.5	15 248.5	64.4%	1 708.8	2 457.8	640.4	226.4	5 033.4	33.9%
Algeria	55.6	16.0	2.8	0.0	74.5	96.2%	50.5	3.7	3.6	0.0	57.7	87.4%
Angola	4.0	1.8	0.1	508.5	514.4	1.1%	5.9	11.1	1.3	24.0	42.4	14.0%
Benin	0.2	0.0	0.2	35.1	35.5	0.6%	0.5	1.7	0.6	1.8	4.6	11.4%
Botswana	3.3	-	0.1	-	3.5	96.1%	0.4	4.6	0.2	0.0	5.2	6.9%
Cameroon	2.5	4.4	0.2	59.6	66.8	10.4%	9.7	7.0	1.9	2.9	21.6	45.1%
Congo	0.5	0.2	0.0	44.9	45.7	1.6%	1.0	1.9	0.4	2.1	5.4	18.3%
Dem. Rep. of Congo	2.1	0.0	0.1	1 071.4	1 073.5	0.2%	4.8	19.9	4.7	50.6	79.9	6.0%
Côte d'Ivoire	3.2	0.0	0.2	123.1	126.5	2.5%	1.2	2.2	1.8	6.0	11.2	10.9%
Egypt	84.0	2.4	7.0	1.2	94.6	91.3%	12.9	12.3	6.8	0.0	31.9	40.3%
Eritrea	0.8	-	0.0	-	0.8	96.8%	0.2	1.3	0.3	-	1.9	12.6%
Ethiopia	2.3	-	0.3	0.0	2.7	88.0%	6.2	30.1	4.9	-	41.3	15.1%
Gabon	1.3	3.3	0.1	3.7	8.3	55.3%	7.6	0.1	0.2	0.2	8.1	93.9%
Ghana	3.3	-	0.6	12.1	16.0	20.7%	2.0	3.5	2.1	0.6	8.2	24.3%
Kenya	5.6	-	0.9	0.0	6.5	86.4%	3.1	13.2	2.7	-	19.0	16.4%
Libyan Arab Jamahiriya	35.1	3.6	1.2	0.0	40.0	96.9%	13.4	1.0	1.0	0.0	15.3	87.4%
Morocco	25.3	-	2.9	0.2	28.4	89.2%	0.4	4.4	3.3	-	8.2	5.2%
Mozambique	1.1	-	0.1	12.7	13.9	8.2%	1.5	6.0	1.7	0.7	9.9	15.6%
Namibia	1.8	-	0.0	-	1.8	100.0%	0.0	3.0	0.2	-	3.2	0.5%
Nigeria	30.4	47.9	0.7	7.9	87.0	90.1%	105.6	24.0	10.5	0.4	140.5	75.1%
Senegal	2.5	-	0.3	-	2.7	90.3%	0.7	3.9	1.1	-	5.7	11.8%
South Africa	276.9	14.3	4.6	1.8	297.6	97.8%	23.9	18.1	9.3	1.3	52.6	45.4%
Sudan	4.6	-	0.1	-	4.7	97.6%	3.2	44.2	3.6	-	50.9	6.3%
United Rep. of Tanzania	2.5	0.0	0.4	40.2	43.1	5.8%	2.1	19.5	2.9	1.9	26.4	7.9%
Togo	0.6	-	0.2	7.0	7.7	7.4%	0.6	1.2	0.5	0.3	2.6	22.7%
Tunisia	14.2	0.3	2.7	0.1	17.2	84.0%	2.1	1.9	1.2	0.0	5.2	40.8%
Zambia	2.0	-	0.3	125.2	127.5	1.6%	1.1	14.2	0.9	5.9	22.1	5.1%
Zimbabwe	14.8	0.1	0.4	-	15.3	97.1%	1.2	5.8	1.1	0.0	8.1	14.4%
Other Africa	17.4	0.9	0.6	231.6	250.6	7.3%	12.6	99.1	12.9	11.5	136.1	9.3%
Africa	598.2	95.1	27.2	2 286.3	3 006.8	23.1%	274.4	358.6	81.7	110.3	825.0	33.3%
Bahrain	11.6	0.0	0.1	-	11.7	99.3%	1.7	0.0	0.2	0.0	1.9	89.4%
Islamic Rep. of Iran	253.1	23.1	7.8	0.2	284.3	97.2%	72.8	19.4	9.7	0.0	101.9	71.5%
Iraq	71.8	0.2	8.2	0.0	80.1	89.8%	4.1	3.1	3.1	0.0	10.3	40.3%
Israel	45.8	-	2.3	0.1	48.2	95.1%	0.2	1.0	1.3	0.0	2.4	6.4%
Jordan	12.1	-	1.5	0.0	13.7	88.7%	0.2	0.4	0.6	-	1.2	15.2%
Kuwait	41.0	1.2	0.9	-	43.2	97.8%	9.4	0.1	0.6	0.0	10.1	93.2%
Lebanon	12.6	-	1.6	0.1	14.2	88.4%	0.1	0.2	0.5	-	0.8	11.7%
Oman	14.4	0.8	0.0	-	15.2	99.8%	5.4	0.4	0.4	-	6.1	87.6%
Qatar	19.1	0.0	0.3	-	19.4	98.7%	3.5	0.1	0.3	0.0	3.9	90.0%
Saudi Arabia	204.4	1.5	7.1	0.0	213.0	96.6%	29.6	2.1	4.0	0.1	35.8	82.6%
Syrian Arab Republic	38.6	4.0	2.0	0.2	44.8	95.1%	10.9	2.4	1.6	0.0	14.9	73.2%
United Arab Emirates	70.0	1.0	2.7	-	73.6	96.3%	15.5	0.4	0.6	-	16.4	94.3%
Yemen	9.3	0.0	0.6	-	10.0	93.8%	1.0	2.2	1.3	-	4.5	21.5%
Middle East	803.8	31.9	35.1	0.6	871.5	95.9%	154.3	31.8	24.0	0.2	210.2	73.4%
Albania	1.9	0.0	0.1	0.0	2.0	95.1%	0.5	2.1	0.2	0.0	2.8	17.1%
Bosnia-Herzegovina	3.3	-	0.1	0.0	3.5	97.0%	0.4	1.0	0.2	-	1.6	22.9%
Bulgaria	53.4	0.8	2.9	0.0	57.1	94.9%	1.1	2.4	8.2	0.0	11.8	9.6%
Croatia	15.8	0.0	0.8	0.0	16.6	95.4%	1.8	1.2	0.4	0.0	3.5	52.8%
Cyprus	5.2	-	0.4	0.0	5.7	92.4%	0.0	0.3	0.2	-	0.5	3.3%
Gibraltar	0.3	-	-	0.0	0.3	99.9%	0.0	-	0.0	-	0.0	14.3%
FYR of Macedonia	8.2	-	0.2	0.0	8.4	96.9%	0.3	0.9	0.3	0.0	1.5	21.9%
Malta	2.4	-	0.0	-	2.4	99.8%	0.0	0.0	0.1	-	0.1	3.3%
Romania	117.1	1.3	5.2	0.2	123.8	95.7%	12.6	10.0	3.9	0.0	26.5	47.5%
Serbia	44.0	0.0	1.0	0.0	45.0	97.7%	3.7	5.1	0.9	0.0	9.7	38.0%
Slovenia	13.3	0.0	0.6	0.0	13.9	95.5%	0.9	1.1	1.1	0.0	3.1	28.5%
Non-OECD Europe	264.9	2.2	11.3	0.3	278.7	95.8%	21.3	24.2	15.5	0.1	61.1	34.9%

1995 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total		
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
108.7	49.6	1 311.8	382.9	1 852.9	5.9%	43.1	46.8	29.7	22 254.4	52.3%	Non-OECD Total
0.3	0.1	2.3	0.8	3.6	9.4%	0.0	-	0.1	135.9	90.1%	Algeria
0.1	-	13.5	22.5	36.1	0.3%	-	-	-	592.9	2.0%	Angola
0.1	-	1.8	1.7	3.6	2.6%	-	-	-	43.7	1.9%	Benin
0.0	-	4.2	0.4	4.6	0.7%	-	-	-	13.3	28.0%	Botswana
0.2	-	6.7	3.1	10.0	2.1%	-	0.7	-	99.0	17.0%	Cameroon
0.0	-	1.8	2.0	3.8	0.7%	0.0	-	-	54.9	3.2%	Congo
1.0	-	26.2	47.6	74.8	1.3%	-	-	-	1 228.3	0.6%	Dem. Rep. of Congo
0.2	-	1.9	5.4	7.5	2.5%	-	-	-	145.1	3.2%	Côte d'Ivoire
0.5	0.2	10.3	1.7	12.7	3.8%	0.0	1.2	0.7	141.1	70.7%	Egypt
0.0	-	0.8	0.1	0.9	3.7%	-	-	-	3.6	29.1%	Eritrea
1.3	-	21.7	1.5	24.5	5.3%	0.0	-	-	68.4	14.4%	Ethiopia
0.0	-	0.1	0.2	0.3	12.0%	0.0	-	-	16.7	73.1%	Gabon
0.4	-	3.6	1.0	5.0	7.6%	0.0	0.3	-	29.5	19.2%	Ghana
0.4	-	8.4	0.5	9.3	4.8%	-	-	-	34.8	26.3%	Kenya
0.1	-	0.7	0.4	1.2	9.9%	-	-	0.1	56.7	92.2%	Libyan Arab Jamahiriya
0.1	-	3.6	0.6	4.4	2.6%	-	-	-	40.9	63.2%	Morocco
0.3	-	7.2	1.5	9.0	3.3%	0.0	-	-	32.8	9.1%	Mozambique
0.1	-	2.2	0.1	2.4	3.8%	-	-	-	7.4	26.1%	Namibia
1.7	-	16.0	2.5	20.1	8.2%	0.0	-	0.0	247.6	74.9%	Nigeria
0.1	-	2.8	0.3	3.1	3.3%	-	-	-	11.6	28.1%	Senegal
2.4	2.7	12.9	4.7	22.7	10.6%	0.0	0.2	0.9	374.1	84.9%	South Africa
0.4	-	36.0	2.4	38.9	1.1%	-	-	-	94.5	8.6%	Sudan
0.4	-	16.7	3.0	20.1	2.1%	-	-	-	89.6	5.6%	United Rep. of Tanzania
0.1	-	1.3	0.5	1.9	4.5%	-	-	-	12.2	10.2%	Togo
0.2	0.4	1.2	0.3	2.1	7.6%	-	-	-	24.5	68.4%	Tunisia
0.2	0.5	22.1	7.1	29.9	0.7%	-	-	-	179.6	1.9%	Zambia
0.2	-	4.5	0.8	5.6	4.1%	-	-	-	29.0	56.2%	Zimbabwe
2.3	-	84.3	16.9	103.4	2.2%	0.0	-	-	490.1	6.8%	Other Africa
13.2	4.0	315.0	129.2	461.4	2.9%	0.1	2.4	1.8	4 297.6	22.8%	Africa
0.0	-	0.0	0.0	0.1	31.1%	-	0.3	-	14.0	95.4%	Bahrain
2.1	0.4	16.4	2.6	21.4	10.0%	-	0.3	1.8	409.7	85.7%	Islamic Rep. of Iran
0.2	-	3.2	0.7	4.1	5.6%	-	-	0.2	94.7	80.6%	Iraq
0.2	-	0.9	0.5	1.6	12.0%	0.1	0.1	0.7	53.1	86.9%	Israel
0.0	-	0.4	0.2	0.6	6.3%	-	-	-	15.5	79.6%	Jordan
0.1	-	0.0	0.2	0.4	25.3%	0.0	-	0.5	54.1	95.6%	Kuwait
0.1	-	0.3	0.2	0.6	11.8%	-	-	-	15.6	81.6%	Lebanon
0.0	-	0.3	0.1	0.4	10.7%	0.0	-	-	21.8	94.7%	Oman
0.0	-	0.1	0.1	0.1	21.5%	-	-	-	23.4	96.8%	Qatar
0.7	-	2.5	2.2	5.4	12.1%	0.0	-	1.2	255.5	92.4%	Saudi Arabia
0.3	0.1	3.5	0.7	4.6	5.8%	-	-	-	64.3	83.7%	Syrian Arab Republic
0.1	-	0.4	0.4	0.9	15.3%	-	0.2	0.4	91.5	94.5%	United Arab Emirates
0.1	-	1.7	0.3	2.2	6.4%	-	-	-	16.6	63.0%	Yemen
4.1	0.5	29.7	8.2	42.4	9.6%	0.2	0.8	4.8	1 129.9	88.0%	Middle East
0.0	-	0.8	0.1	1.0	2.5%	0.0	-	-	5.7	41.4%	Albania
0.1	-	0.6	0.1	0.8	11.4%	0.0	0.1	-	6.0	63.8%	Bosnia-Herzegovina
0.4	2.0	2.2	0.6	5.1	6.9%	0.0	0.0	-	74.1	75.2%	Bulgaria
0.2	0.8	1.4	0.3	2.8	7.5%	0.0	0.3	-	23.1	77.3%	Croatia
0.0	-	0.2	0.1	0.3	7.9%	0.0	-	-	6.5	81.4%	Cyprus
0.0	-	-	0.0	0.0	26.0%	-	-	-	0.3	96.8%	Gibraltar
0.1	-	0.5	0.1	0.8	17.4%	0.0	-	-	10.7	80.7%	FYR of Macedonia
0.0	-	0.0	0.0	0.1	12.2%	0.0	-	-	2.6	91.7%	Malta
0.7	3.6	7.0	1.3	12.7	5.8%	0.0	1.3	0.0	164.4	80.1%	Romania
0.3	0.4	2.9	0.5	4.1	6.4%	0.2	0.2	0.1	59.2	81.0%	Serbia
0.1	-	0.7	0.2	1.0	11.7%	0.0	0.3	0.0	18.4	77.8%	Slovenia
2.0	6.8	16.3	3.4	28.6	6.9%	0.3	2.2	0.1	370.9	78.3%	Non-OECD Europe

1995 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Armenia	3.4	-	0.1	0.0	3.5	96.7%	1.1	1.0	0.3	0.0	2.4	46.0%
Azerbaijan	31.5	0.0	0.1	0.0	31.6	99.6%	4.3	3.4	1.4	0.0	9.1	47.2%
Belarus	61.4	0.0	0.9	1.9	64.2	95.6%	0.9	10.3	1.8	0.0	13.0	7.0%
Estonia	16.1	0.1	0.4	0.0	16.6	97.8%	0.7	0.9	0.4	-	2.0	33.9%
Georgia	7.1	0.0	0.0	0.0	7.2	98.8%	1.6	1.8	0.7	0.0	4.1	39.7%
Kazakhstan	167.0	2.5	1.4	4.0	174.9	96.9%	19.6	18.5	2.0	1.6	41.7	46.9%
Kyrgyzstan	4.4	0.0	0.1	0.1	4.6	95.7%	0.3	2.7	0.7	0.1	3.7	7.3%
Latvia	8.8	-	0.1	0.0	9.0	98.5%	1.3	1.3	0.5	0.0	3.1	43.3%
Lithuania	14.2	-	0.3	0.0	14.6	97.4%	1.6	2.3	2.0	0.0	6.0	27.5%
Republic of Moldova	10.9	-	0.0	0.1	11.0	98.9%	1.5	1.9	0.5	0.0	3.9	39.7%
Russian Federation	1 574.5	13.2	32.7	18.9	1 639.4	96.9%	377.8	85.3	45.3	3.6	512.1	73.8%
Tajikistan	2.4	0.0	0.0	0.0	2.5	96.6%	0.5	2.5	0.7	0.0	3.6	13.1%
Turkmenistan	34.4	0.0	0.2	0.2	34.8	98.9%	12.1	3.3	0.7	0.0	16.2	75.0%
Ukraine	392.8	44.0	8.8	2.1	447.7	97.6%	56.4	36.4	9.4	0.1	102.3	55.1%
Uzbekistan	101.6	0.0	1.8	0.4	103.8	97.9%	18.8	11.8	2.9	0.0	33.5	56.2%
Former Soviet Union	2 430.6	59.9	47.1	27.9	2 565.5	97.1%	498.7	183.4	69.3	5.4	756.7	65.9%
Argentina	118.2	4.6	2.4	13.1	138.4	88.8%	23.6	74.5	7.9	2.0	108.0	21.8%
Bolivia	8.2	1.9	0.4	127.2	137.7	7.3%	6.3	10.9	1.0	5.2	23.5	26.9%
Brazil	240.4	6.4	15.9	761.2	1 024.0	24.1%	20.4	252.4	48.1	31.2	352.1	5.8%
Chile	40.6	0.6	2.2	0.6	44.0	93.7%	3.0	6.5	4.7	0.1	14.4	20.6%
Colombia	58.0	1.0	5.0	44.2	108.2	54.5%	8.5	37.4	5.3	1.8	53.1	16.0%
Costa Rica	4.4	-	0.4	0.0	4.9	90.6%	0.1	2.5	0.5	-	3.0	3.4%
Cuba	22.1	1.2	0.8	0.8	24.7	93.9%	0.6	7.2	2.4	0.1	10.3	6.2%
Dominican Republic	11.4	-	0.6	0.4	12.5	91.7%	0.5	4.4	1.4	0.0	6.3	8.1%
Ecuador	16.3	1.5	1.0	0.5	19.3	92.5%	4.3	9.7	1.4	0.0	15.5	28.0%
El Salvador	4.7	-	0.4	0.1	5.2	90.0%	0.3	1.5	0.8	-	2.7	13.0%
Guatemala	6.0	0.0	0.6	4.4	11.0	54.6%	0.8	3.2	1.1	0.2	5.3	14.4%
Haiti	0.9	-	0.2	-	1.1	81.2%	0.5	1.9	1.0	-	3.4	13.5%
Honduras	3.5	-	0.2	2.2	5.9	59.6%	0.3	2.9	0.6	0.2	4.0	8.7%
Jamaica	8.4	-	0.4	-	8.7	95.9%	0.1	0.7	0.5	-	1.3	10.8%
Netherlands Antilles	2.8	-	-	-	2.8	100.0%	0.1	0.0	0.0	-	0.1	59.7%
Nicaragua	2.5	-	0.2	0.0	2.6	94.2%	0.3	3.5	0.8	-	4.6	6.2%
Panama	4.1	-	0.3	-	4.4	93.6%	0.1	2.4	0.4	-	2.9	4.5%
Paraguay	3.4	-	0.3	31.3	35.1	9.8%	0.6	13.2	0.8	1.4	16.1	3.6%
Peru	23.7	0.4	1.6	16.2	42.0	57.5%	2.0	9.0	3.3	0.7	14.9	13.1%
Trinidad and Tobago	12.3	2.0	0.3	-	14.5	98.1%	6.0	0.1	0.7	0.0	6.8	88.1%
Uruguay	4.5	0.0	0.3	0.0	4.8	94.4%	0.1	17.7	0.7	-	18.6	0.6%
Venezuela	118.3	12.7	3.1	31.0	165.1	79.3%	45.7	18.8	4.6	1.3	70.5	64.9%
Other Latin America	13.4	0.0	0.9	13.5	27.8	48.2%	0.2	2.9	2.1	0.6	5.7	3.3%
Latin America	728.2	32.4	37.2	1 047.0	1 844.7	41.2%	124.4	483.3	90.5	44.9	743.0	16.7%
Bangladesh	20.5	-	0.1	8.7	29.4	69.9%	6.3	64.8	13.5	0.4	85.1	7.4%
Brunei Darussalam	4.7	1.0	0.0	11.1	16.8	33.8%	5.4	0.0	0.1	0.5	6.0	90.0%
Cambodia	1.4	-	-	0.0	1.4	99.8%	1.0	13.7	1.0	-	15.7	6.6%
Chinese Taipei	157.8	0.6	10.2	0.5	169.1	93.7%	1.1	1.5	4.6	0.0	7.1	15.3%
India	785.0	19.1	30.1	48.3	882.6	91.1%	79.1	374.5	88.3	2.5	544.4	14.5%
Indonesia	192.4	9.8	10.8	464.8	677.7	29.8%	54.0	83.6	33.4	11.5	182.5	29.6%
DPR of Korea	74.9	0.4	7.8	0.1	83.2	90.5%	8.9	4.7	3.0	0.9	17.5	51.0%
Malaysia	78.5	5.5	4.9	98.5	187.4	44.8%	22.1	6.4	3.8	4.6	37.0	59.7%
Mongolia	10.1	-	0.1	0.2	10.3	97.3%	0.8	6.8	0.3	1.0	8.9	9.0%
Myanmar	6.7	0.0	0.2	790.8	797.8	0.8%	2.8	44.2	5.0	37.4	89.5	3.1%
Nepal	1.7	-	0.1	0.2	2.0	85.5%	1.2	17.5	1.9	0.0	20.6	6.0%
Pakistan	80.1	0.6	3.8	0.1	84.6	95.4%	19.0	69.5	13.1	0.0	101.5	18.7%
Philippines	59.0	0.0	4.9	2.6	66.5	88.8%	2.6	30.0	10.5	0.2	43.4	6.0%
Singapore	37.9	0.2	1.5	0.1	39.8	96.0%	0.8	0.0	0.6	0.0	1.5	54.8%
Sri Lanka	5.5	-	0.4	0.5	6.4	85.7%	0.8	8.1	2.6	0.0	11.6	7.2%
Thailand	141.3	0.0	15.9	11.8	169.0	83.6%	9.4	60.4	10.2	0.5	80.6	11.7%
Vietnam	28.0	0.5	3.2	0.7	32.4	88.1%	8.4	49.1	8.1	0.0	65.7	12.8%
Other Asia	9.3	0.0	0.3	36.1	45.7	20.5%	2.3	15.6	3.6	1.3	22.9	10.1%
Asia	1 694.9	37.9	94.3	1 475.1	3 302.1	52.5%	226.3	850.6	203.5	61.1	1 341.6	16.9%
People's Rep. of China	2 986.1	14.3	303.8	37.4	3 341.5	89.8%	409.0	526.0	154.3	4.4	1 093.6	37.4%
Hong Kong, China	36.0	0.8	0.9	0.0	37.7	97.7%	0.4	-	1.7	-	2.1	18.6%
China	3 022.1	15.1	304.7	37.4	3 379.2	89.9%	409.4	526.0	156.0	4.4	1 095.7	37.4%

1995 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
0.0	-	0.4	0.1	0.5	0.7%	0.0	-	-	6.4	70.5%	Armenia
0.1	-	1.4	0.3	1.8	3.0%	0.0	0.0	-	42.6	84.2%	Azerbaijan
0.5	1.5	8.4	0.6	10.9	4.5%	0.0	0.0	-	88.1	71.3%	Belarus
0.2	-	0.6	0.1	0.9	21.2%	0.0	0.0	0.0	19.6	87.5%	Estonia
0.1	0.5	0.9	0.2	1.7	4.6%	0.0	-	-	13.0	67.6%	Georgia
2.9	-	13.6	3.8	20.3	14.2%	0.0	-	-	236.8	81.0%	Kazakhstan
0.1	-	1.2	0.3	1.5	7.0%	0.0	-	-	9.8	48.8%	Kyrgyzstan
0.1	-	1.0	0.2	1.3	10.2%	0.0	0.0	-	13.4	77.0%	Latvia
0.1	-	1.9	0.2	2.2	6.3%	0.0	0.0	-	22.8	70.0%	Lithuania
0.1	-	1.2	0.2	1.5	7.8%	0.0	-	-	16.4	76.8%	Republic of Moldova
8.8	10.4	46.7	17.3	83.3	10.6%	8.5	22.5	9.4	2 275.2	86.8%	Russian Federation
0.0	-	1.2	0.2	1.3	1.0%	0.0	1.8	-	9.3	31.4%	Tajikistan
0.0	0.3	1.8	0.2	2.4	1.7%	0.0	-	-	53.4	87.3%	Turkmenistan
1.6	4.6	19.1	3.0	28.3	5.6%	0.0	0.3	-	578.7	85.5%	Ukraine
0.2	0.1	5.9	0.9	7.0	2.6%	0.0	-	-	144.3	83.6%	Uzbekistan
14.8	17.4	105.1	27.5	164.9	9.0%	8.6	24.7	9.4	3 529.8	85.1%	Former Soviet Union
1.4	0.1	32.6	4.2	38.3	3.7%	0.2	0.1	0.2	285.2	51.8%	Argentina
0.1	-	7.1	5.7	12.9	1.0%	-	-	-	174.1	9.5%	Bolivia
4.3	6.9	120.5	38.2	169.9	2.5%	2.2	4.3	1.0	1 553.5	17.5%	Brazil
0.4	0.2	4.9	0.9	6.3	5.6%	-	0.0	0.0	64.7	68.8%	Chile
0.7	0.2	16.5	3.0	20.5	3.5%	-	0.0	0.1	181.8	37.5%	Colombia
0.1	0.2	1.4	0.1	1.8	3.3%	0.0	-	-	9.7	47.0%	Costa Rica
0.4	0.7	5.9	0.4	7.4	5.5%	0.0	-	-	42.4	57.2%	Cuba
0.1	-	1.9	0.2	2.3	5.5%	-	-	-	21.1	57.2%	Dominican Republic
0.2	-	3.5	0.4	4.1	4.4%	0.0	-	-	38.9	57.5%	Ecuador
0.1	-	1.0	0.2	1.2	7.6%	0.0	-	-	9.1	56.3%	El Salvador
0.2	-	2.2	0.5	2.9	6.9%	0.0	-	-	19.3	36.2%	Guatemala
0.1	-	0.9	0.1	1.0	5.2%	-	-	-	5.5	25.6%	Haiti
0.1	-	2.4	0.3	2.8	3.4%	-	-	-	12.7	31.3%	Honduras
0.1	-	0.4	0.2	0.6	9.0%	0.0	-	-	10.6	80.8%	Jamaica
0.0	-	0.0	0.0	0.0	20.9%	-	-	-	3.0	97.1%	Netherlands Antilles
0.1	-	2.7	0.1	2.9	2.5%	-	-	-	10.2	28.1%	Nicaragua
0.0	-	0.9	0.1	1.1	3.8%	-	-	-	8.4	51.0%	Panama
0.2	-	6.8	1.9	8.8	1.8%	-	-	-	60.0	7.0%	Paraguay
0.3	0.2	4.7	1.3	6.4	4.3%	0.0	-	-	63.3	41.6%	Peru
0.0	-	0.1	0.1	0.2	16.5%	-	-	-	21.5	94.2%	Trinidad and Tobago
0.1	-	6.5	0.1	6.7	1.6%	0.0	-	-	30.1	15.8%	Uruguay
0.5	0.0	8.6	2.3	11.4	4.2%	1.1	1.0	0.1	249.2	71.1%	Venezuela
0.1	-	2.5	0.8	3.4	2.8%	0.0	0.3	0.0	37.2	36.8%	Other Latin America
9.5	8.5	234.0	61.0	313.0	3.0%	3.6	5.8	1.4	2 911.5	30.7%	Latin America
1.3	-	15.2	1.7	18.2	7.4%	-	-	-	132.7	21.2%	Bangladesh
0.0	-	0.1	0.5	0.6	2.2%	0.0	-	-	23.4	47.4%	Brunei Darussalam
0.2	-	3.7	0.4	4.3	4.9%	-	-	-	21.5	12.3%	Cambodia
0.6	0.5	2.6	1.0	4.7	12.8%	0.0	0.7	1.3	182.9	87.5%	Chinese Taipei
21.6	1.7	140.9	23.2	187.4	11.5%	1.9	1.7	3.4	1 621.4	55.8%	India
3.8	0.2	59.8	25.9	89.6	4.2%	-	0.5	1.0	951.3	27.3%	Indonesia
0.4	-	1.5	2.2	4.2	10.4%	0.1	-	-	105.0	80.6%	DPR of Korea
0.5	0.1	8.5	5.3	14.4	3.4%	0.0	0.0	0.7	239.6	44.5%	Malaysia
0.1	-	3.6	1.6	5.3	1.3%	-	-	-	24.5	44.6%	Mongolia
0.5	-	9.7	34.0	44.2	1.0%	-	-	-	931.5	1.1%	Myanmar
0.5	-	3.1	0.3	3.9	13.4%	-	-	-	26.6	13.2%	Nepal
2.6	0.6	15.6	2.4	21.2	12.2%	-	-	0.3	207.8	49.3%	Pakistan
0.9	0.0	7.5	2.2	10.6	8.6%	-	-	0.4	120.8	51.8%	Philippines
0.1	0.9	0.1	0.3	1.4	6.2%	0.1	0.2	0.3	43.4	90.1%	Singapore
0.3	-	1.3	0.3	1.9	14.7%	-	-	-	20.0	33.3%	Sri Lanka
3.8	0.0	15.8	2.9	22.5	16.8%	-	-	0.9	273.0	56.6%	Thailand
1.0	-	12.9	1.6	15.4	6.5%	-	-	-	113.5	33.5%	Vietnam
0.4	-	9.2	2.0	11.7	3.8%	0.0	-	-	80.2	15.1%	Other Asia
38.6	4.0	311.0	108.0	461.6	8.4%	2.2	3.1	8.4	5 119.0	39.0%	Asia
26.4	8.4	300.6	45.3	380.6	6.9%	28.1	7.7	3.7	4 855.3	70.8%	People's Rep. of China
0.2	-	-	0.3	0.5	33.3%	-	-	0.2	40.4	92.4%	Hong Kong, China
26.5	8.4	300.6	45.6	381.1	7.0%	28.1	7.7	3.8	4 895.7	70.9%	China

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World *	23 496.5	366.6	921.5	4 554.8	29 339.4	81.3%	2 277.5	3 022.7	1 138.2	195.4	6 633.8	34.3%
<i>Annex I Parties</i>	13 757.9	140.4	314.1	290.1	14 502.5	95.8%	927.7	685.0	452.7	35.2	2 100.6	44.2%
<i>Annex II Parties</i>	11 003.6	78.8	232.7	135.5	11 450.6	96.8%	437.2	535.2	333.4	14.3	1 320.2	33.1%
<i>North America</i>	6 230.9	32.5	73.0	64.5	6 400.9	97.9%	274.9	208.6	161.1	6.1	650.6	42.3%
<i>Europe</i>	3 220.1	26.0	106.3	12.7	3 365.0	96.5%	124.8	193.7	144.1	1.7	464.3	26.9%
<i>Pacific</i>	1 552.7	20.4	53.4	58.3	1 684.7	93.4%	37.6	132.9	28.2	6.5	205.2	18.3%
<i>Annex I EIT</i>	2 553.7	59.1	65.3	153.9	2 831.9	92.3%	480.8	127.3	94.8	20.9	723.8	66.4%
<i>Non-Annex I Parties</i>	8 915.6	226.2	607.4	4 264.7	14 014.0	65.2%	1 348.6	2 337.7	685.5	160.2	4 532.0	29.8%
<i>Annex I Kyoto Parties</i>	7 800.5	110.8	232.7	247.7	8 391.7	94.3%	672.3	469.0	293.4	31.0	1 465.6	45.9%
Int. marine bunkers	468.6	-	-	-	468.6	100.0%	1.2	-	-	-	1.2	-
Int. aviation bunkers	354.4	-	-	-	354.4	100.0%	0.1	-	-	-	0.1	-
Non-OECD Total	10 197.6	269.0	615.7	4 386.7	15 469.0	67.7%	1 726.1	2 375.4	732.1	179.6	5 013.2	34.4%
OECD Total	12 475.9	97.6	305.8	168.1	13 047.4	96.4%	550.2	647.3	406.1	15.8	1 619.4	34.0%
Canada	532.8	5.4	9.1	24.2	571.6	94.2%	30.0	23.3	28.3	2.0	83.6	35.8%
Mexico	345.8	9.3	18.0	29.8	402.9	88.1%	44.1	53.4	18.7	1.2	117.3	37.6%
United States	5 698.1	27.1	63.9	40.3	5 829.3	98.2%	245.0	185.2	132.7	4.1	567.1	43.2%
OECD N. America	6 576.7	41.8	91.0	94.3	6 803.8	97.3%	319.0	261.9	179.8	7.3	768.0	41.5%
Australia	338.8	2.8	5.2	35.7	382.5	89.3%	32.0	77.6	15.2	6.0	130.8	24.5%
Japan	1 184.0	17.3	47.7	22.1	1 271.2	94.5%	4.5	31.8	11.1	0.4	47.8	9.4%
Korea	421.0	1.9	23.6	0.0	446.6	94.7%	5.9	12.5	12.4	0.1	30.9	19.1%
New Zealand	29.8	0.3	0.4	0.6	31.1	96.8%	1.1	23.5	2.0	0.1	26.7	4.1%
OECD Pacific	1 973.7	22.3	76.9	58.4	2 131.3	93.7%	43.5	145.5	40.6	6.6	236.1	18.4%
Austria	61.6	0.5	3.3	0.1	65.4	94.8%	1.9	4.4	2.6	0.0	9.0	21.7%
Belgium	118.6	0.0	4.6	0.2	123.5	96.1%	1.5	6.5	3.6	0.0	11.7	13.1%
Czech Republic	121.9	2.2	3.2	0.5	127.8	97.1%	6.3	4.3	1.8	0.1	12.4	50.4%
Denmark	50.5	0.5	1.5	0.3	52.8	96.5%	1.1	5.4	1.7	-	8.1	13.0%
Finland	54.2	0.4	0.8	0.6	56.0	97.4%	0.7	2.1	7.4	0.0	10.3	6.7%
France	376.9	2.2	11.0	3.9	394.0	96.2%	35.2	38.3	9.3	0.1	82.9	42.4%
Germany	827.1	3.2	20.9	1.9	853.2	97.3%	27.3	31.8	23.0	0.2	82.3	33.2%
Greece	87.2	0.0	6.9	0.3	94.3	92.4%	1.9	3.7	1.6	0.1	7.2	26.6%
Hungary	54.2	0.6	1.8	0.2	56.8	96.6%	2.4	3.0	2.8	0.0	8.2	28.7%
Iceland	2.1	-	0.1	0.0	2.2	97.0%	0.0	0.2	0.1	0.0	0.3	1.7%
Ireland	40.9	-	1.7	0.3	42.8	95.4%	1.3	11.8	1.6	0.0	14.7	8.7%
Italy	426.0	4.0	19.7	1.2	451.0	95.4%	7.5	18.3	20.8	0.2	46.7	16.0%
Luxembourg	8.0	-	0.5	-	8.5	94.1%	0.1	0.8	0.1	0.0	1.0	10.1%
Netherlands	172.1	0.8	0.9	0.1	174.0	99.4%	5.1	10.1	9.1	0.1	24.4	20.7%
Norway	33.5	1.8	0.9	0.8	37.1	95.3%	11.7	2.2	2.6	0.1	16.5	70.5%
Poland	291.4	1.8	8.5	1.3	303.0	96.8%	43.8	14.7	10.8	0.1	69.3	63.2%
Portugal	59.4	0.2	4.1	0.1	63.9	93.4%	1.0	4.4	6.2	0.4	12.0	8.1%
Slovak Republic	37.4	0.4	2.0	0.1	39.9	94.7%	0.9	1.8	1.7	0.0	4.4	20.8%
Spain	283.9	2.1	16.8	0.8	303.5	94.2%	4.1	20.0	9.8	0.4	34.4	12.0%
Sweden	52.8	1.4	1.7	0.2	56.1	96.6%	1.1	3.3	6.6	0.0	11.1	10.3%
Switzerland	41.7	0.0	1.7	0.1	43.5	95.8%	0.9	3.2	0.8	0.0	4.9	18.4%
Turkey	200.6	2.5	16.1	0.7	219.9	92.3%	9.7	22.4	24.5	0.0	56.6	17.1%
United Kingdom	523.6	8.8	9.1	1.7	543.1	98.0%	22.4	27.2	37.2	0.1	86.8	25.8%
OECD Europe	3 925.5	33.5	137.9	15.5	4 112.4	96.3%	187.7	239.9	185.7	1.9	615.2	30.5%
<i>European Union - 27</i>	3 831.0	31.1	129.0	14.1	4 005.2	96.4%	182.2	227.4	174.5	2.2	586.4	31.1%

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO₂ emissions from fuel combustion. EDGAR 4 database for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total		
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
272.3	167.5	1 822.7	527.3	2 789.8	9.8%	287.5	101.7	130.2	39 282.4	67.2%	World *
155.0	125.4	542.2	159.7	982.3	15.8%	205.8	74.6	97.8	17 963.5	83.4%	Annex I Parties
133.0	82.5	425.2	109.2	749.9	17.7%	188.7	46.9	84.9	13 841.3	84.2%	Annex II Parties
91.6	29.6	191.5	52.1	364.8	25.1%	115.0	21.8	51.0	7 604.1	87.2%	North America
28.0	46.8	156.8	35.1	266.8	10.5%	45.6	13.8	26.3	4 181.7	81.3%	Europe
13.4	6.2	76.8	22.0	118.4	11.3%	28.1	11.3	7.7	2 055.4	79.0%	Pacific
18.0	38.6	95.5	47.0	199.1	9.1%	16.1	27.1	11.9	3 809.8	81.7%	Annex I EIT
110.4	42.1	1 280.5	348.7	1 781.7	6.2%	81.7	27.1	32.3	20 468.8	51.8%	Non-Annex I Parties
67.3	93.6	343.5	109.8	614.3	11.0%	95.5	59.3	50.7	10 677.1	81.0%	Annex I Kyoto Parties
3.8	-	-	16.5	20.3	0.2	-	-	-	490.1	96.6%	Int. marine bunkers
3.2	-	-	2.4	5.6	0.6	-	-	-	360.0	99.3%	Int. aviation bunkers
114.7	62.5	1 313.2	381.6	1 872.0	6.1%	90.8	50.5	36.7	22 532.2	54.6%	Non-OECD Total
150.6	105.0	509.5	126.8	891.9	16.9%	196.7	51.1	93.5	15 900.1	83.5%	OECD Total
8.4	3.8	22.5	6.1	40.7	20.5%	5.8	7.1	4.8	713.7	80.8%	Canada
2.8	1.2	32.6	5.5	42.1	6.6%	2.8	0.6	0.8	566.4	71.0%	Mexico
83.2	25.8	169.1	46.0	324.0	25.7%	109.1	14.7	46.1	6 890.5	87.9%	United States
94.3	30.8	224.1	57.5	406.8	23.2%	117.7	22.4	51.8	8 170.6	86.1%	OECD N. America
3.9	1.7	57.3	12.4	75.4	5.1%	2.5	1.2	0.5	592.8	63.7%	Australia
9.2	4.4	8.7	9.3	31.6	29.1%	25.2	9.8	7.2	1 392.6	87.2%	Japan
3.2	6.8	4.7	4.0	18.7	17.1%	2.6	2.2	4.1	505.1	85.6%	Korea
0.4	-	10.8	0.3	11.5	3.1%	0.3	0.4	0.1	70.0	45.0%	New Zealand
16.6	13.0	81.5	26.0	137.1	12.1%	30.8	13.5	11.8	2 560.5	80.3%	OECD Pacific
0.8	0.5	2.5	0.8	4.6	17.6%	1.0	0.1	0.4	80.5	80.5%	Austria
0.9	1.0	3.1	1.1	6.1	13.8%	1.0	0.0	0.3	142.6	84.9%	Belgium
3.4	1.2	3.2	1.0	8.9	38.7%	0.4	0.0	0.0	149.6	89.5%	Czech Republic
0.6	1.0	4.9	0.5	7.0	8.2%	0.7	0.0	0.2	68.8	76.4%	Denmark
1.6	1.1	3.2	1.0	7.0	23.3%	0.4	0.0	0.1	73.8	77.1%	Finland
3.7	8.8	33.6	4.5	50.6	7.4%	7.1	1.1	2.7	538.5	77.6%	France
6.5	7.5	30.5	5.7	50.2	12.9%	9.3	1.7	17.5	1 014.1	85.2%	Germany
1.0	0.5	3.7	1.3	6.5	15.0%	1.0	0.3	0.1	109.5	82.3%	Greece
0.4	1.8	4.0	0.7	6.9	5.1%	0.4	0.3	0.0	72.6	79.3%	Hungary
0.0	-	0.3	0.0	0.4	9.7%	0.0	0.1	0.0	3.1	70.8%	Iceland
0.3	0.6	7.0	0.4	8.3	4.0%	0.4	0.4	0.1	66.8	63.6%	Ireland
2.9	8.1	14.1	5.3	30.3	9.4%	7.6	0.4	1.6	537.5	81.9%	Italy
0.1	-	0.3	0.1	0.4	19.4%	0.1	0.0	0.4	10.4	78.7%	Luxembourg
0.9	7.0	6.2	1.3	15.3	5.8%	5.4	1.0	-	220.0	81.3%	Netherlands
0.4	1.7	1.8	0.6	4.6	8.1%	0.2	4.6	1.0	64.0	74.1%	Norway
3.4	6.0	17.0	2.7	29.1	11.8%	0.7	0.5	0.2	402.8	84.5%	Poland
0.8	0.6	2.8	1.7	5.9	13.9%	0.4	0.0	0.1	82.3	74.7%	Portugal
0.5	1.1	1.2	0.3	3.1	15.5%	0.1	0.1	2.5	50.0	78.4%	Slovak Republic
2.6	2.5	17.4	5.0	27.5	9.5%	3.3	2.3	-	371.0	78.9%	Spain
1.2	0.7	3.8	0.8	6.5	17.8%	0.6	0.7	0.2	75.1	75.2%	Sweden
0.5	0.1	1.4	0.5	2.5	19.5%	0.8	0.1	0.4	52.3	82.5%	Switzerland
3.9	4.3	21.6	3.5	33.3	11.9%	1.0	0.6	1.0	312.4	69.4%	Turkey
3.4	5.0	20.2	4.7	33.2	10.1%	6.4	0.9	1.2	671.6	83.1%	United Kingdom
39.7	61.2	203.8	43.3	348.0	11.4%	48.2	15.3	29.9	5 169.0	81.0%	OECD Europe
36.5	59.6	191.2	41.7	329.1	11.1%	47.0	10.8	27.5	5 006.1	81.5%	European Union - 27

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	10 197.6	269.0	615.7	4 386.7	15 469.0	67.7%	1 726.1	2 375.4	732.1	179.6	5 013.2	34.4%
Algeria	62.4	11.5	3.7	0.0	77.6	95.2%	50.5	4.2	4.1	0.0	58.8	85.8%
Angola	5.1	1.8	0.2	492.3	499.4	1.4%	6.4	12.6	1.5	22.6	43.1	14.8%
Benin	1.4	-	0.1	24.1	25.6	5.5%	0.6	2.0	0.8	0.8	4.2	14.1%
Botswana	4.2	-	0.1	-	4.3	97.1%	0.4	3.2	0.2	0.0	3.8	10.1%
Cameroon	2.8	3.6	0.4	54.8	61.5	10.3%	8.1	8.3	2.2	2.6	21.3	38.3%
Congo	0.6	0.3	0.0	43.1	44.0	2.0%	1.4	1.5	0.5	2.1	5.5	25.0%
Dem. Rep. of Congo	1.7	0.0	0.1	910.3	912.1	0.2%	5.3	13.4	5.3	38.5	62.5	8.4%
Côte d'Ivoire	6.1	0.0	0.3	137.0	143.4	4.3%	1.6	2.1	2.1	7.3	13.2	12.5%
Egypt	110.2	1.9	11.1	1.0	124.2	90.3%	14.6	13.4	7.5	0.0	35.5	41.2%
Eritrea	0.6	-	0.0	-	0.7	92.8%	0.2	2.0	0.4	-	2.6	9.0%
Ethiopia	3.2	-	0.4	0.0	3.6	88.3%	6.9	32.8	5.8	-	45.5	15.1%
Gabon	1.4	3.2	0.1	2.2	6.8	66.7%	7.2	0.1	0.3	0.0	7.6	94.6%
Ghana	5.1	-	0.8	8.5	14.4	35.4%	2.0	3.9	2.5	0.3	8.7	23.4%
Kenya	6.8	-	0.7	0.0	7.5	90.7%	3.4	12.5	3.3	-	19.2	17.7%
Libyan Arab Jamahiriya	39.7	2.1	1.5	0.0	43.3	96.6%	10.1	0.8	1.0	0.0	11.9	84.4%
Morocco	28.3	-	3.5	0.2	32.0	88.3%	0.3	5.4	3.8	-	9.5	3.0%
Mozambique	1.3	-	0.1	38.1	39.5	3.3%	1.6	5.8	1.9	2.9	12.1	13.1%
Namibia	1.9	-	0.0	-	1.9	100.0%	0.0	4.2	0.2	-	4.4	0.3%
Nigeria	40.1	31.6	1.1	7.6	80.4	89.2%	76.9	24.7	12.5	0.4	114.5	67.2%
Senegal	3.6	-	0.4	0.0	4.0	88.8%	0.7	4.6	1.3	-	6.6	10.2%
South Africa	298.5	12.9	4.5	2.1	318.0	97.9%	25.8	18.9	11.1	1.3	57.1	45.2%
Sudan	5.5	0.0	0.1	0.1	5.6	97.9%	3.7	52.2	4.3	-	60.2	6.1%
United Rep. of Tanzania	2.6	-	0.4	47.2	50.1	5.1%	2.5	19.0	3.5	2.5	27.5	9.1%
Togo	1.0	-	0.3	6.0	7.3	13.2%	0.6	1.2	0.6	0.3	2.7	23.5%
Tunisia	18.0	0.3	2.8	0.1	21.2	86.3%	3.4	2.1	1.4	0.0	6.9	49.5%
Zambia	1.7	-	0.3	106.4	108.3	1.6%	1.2	9.8	1.0	4.4	16.4	7.4%
Zimbabwe	12.7	0.3	0.4	-	13.4	96.8%	1.2	7.0	1.3	0.0	9.6	12.8%
Other Africa	20.0	1.8	0.7	207.3	229.8	9.5%	15.2	96.8	15.1	9.3	136.3	11.1%
Africa	686.3	71.2	34.0	2 088.5	2 880.0	26.3%	251.8	364.5	95.7	95.2	807.2	31.2%
Bahrain	14.1	0.0	0.0	-	14.2	99.7%	2.1	0.0	0.3	0.0	2.4	86.7%
Islamic Rep. of Iran	310.6	24.8	12.1	0.3	347.8	96.4%	84.8	19.8	11.3	0.0	115.9	73.2%
Iraq	81.8	2.2	0.9	0.0	84.9	98.9%	12.2	2.8	3.4	0.0	18.4	66.5%
Israel	54.8	-	3.2	0.0	58.0	94.4%	0.1	1.0	1.5	0.0	2.7	5.2%
Jordan	14.3	-	1.1	0.0	15.4	92.5%	0.2	0.4	0.8	-	1.4	14.3%
Kuwait	50.2	1.2	0.7	-	52.1	98.7%	9.3	0.1	0.7	0.0	10.1	91.9%
Lebanon	14.2	-	1.2	0.0	15.4	91.8%	0.1	0.2	0.6	-	0.9	10.2%
Oman	19.8	2.0	0.6	-	22.3	97.5%	10.5	0.5	0.4	-	11.4	91.8%
Qatar	24.3	0.1	0.5	-	24.8	98.2%	9.5	0.1	0.4	0.0	10.0	95.0%
Saudi Arabia	251.0	2.2	8.1	0.1	261.2	96.9%	33.6	1.9	4.9	0.2	40.6	82.7%
Syrian Arab Republic	45.8	0.9	2.1	0.1	48.9	95.5%	6.4	2.7	1.9	-	11.1	58.0%
United Arab Emirates	86.1	3.3	2.7	-	92.1	97.1%	22.8	0.5	0.8	-	24.1	94.7%
Yemen	13.2	0.1	0.7	-	14.0	94.8%	1.2	2.7	1.5	-	5.4	22.0%
Middle East	979.9	36.7	33.9	0.6	1 051.2	96.7%	192.8	32.8	28.5	0.3	254.3	75.8%
Albania	3.2	0.0	0.0	0.0	3.2	98.4%	0.4	1.8	0.2	0.2	2.6	14.4%
Bosnia-Herzegovina	13.7	-	0.2	0.0	13.8	98.7%	1.1	1.0	0.3	0.4	2.8	38.8%
Bulgaria	42.0	0.9	2.8	0.0	45.7	93.9%	1.3	2.4	7.8	0.3	11.7	10.8%
Croatia	17.7	0.0	1.4	0.0	19.1	92.4%	1.9	1.1	0.4	0.0	3.4	54.7%
Cyprus	6.3	-	0.6	0.0	6.8	91.6%	0.0	0.3	0.3	-	0.6	3.1%
Gibraltar	0.4	-	-	0.0	0.4	99.9%	0.0	-	0.0	-	0.0	11.9%
FYR of Macedonia	8.4	-	0.2	0.0	8.7	97.1%	0.5	0.7	0.3	0.0	1.5	30.6%
Malta	2.1	-	0.0	-	2.1	99.8%	0.0	0.1	0.1	-	0.2	1.6%
Romania	86.3	0.9	4.4	0.2	91.8	95.0%	10.4	8.4	4.3	0.1	23.3	44.7%
Serbia	42.5	0.0	1.2	0.0	43.8	97.2%	3.3	4.0	1.2	0.2	8.6	37.8%
Slovenia	14.1	-	1.4	0.0	15.5	90.8%	1.1	1.1	1.2	0.0	3.4	31.4%
Non-OECD Europe	236.6	1.8	12.3	0.3	251.1	95.0%	19.8	20.8	16.1	1.3	58.0	34.1%

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
114.7	62.5	1 313.2	381.6	1 872.0	6.1%	90.8	50.5	36.7	22 532.2	54.6%	Non-OECD Total
0.3	0.6	2.7	0.8	4.5	7.6%	0.1	-	0.3	141.3	88.3%	Algeria
0.1	-	14.8	21.9	36.8	0.3%	0.0	-	-	579.3	2.3%	Angola
0.1	-	2.0	1.2	3.3	3.3%	-	-	-	33.2	6.4%	Benin
0.0	-	2.3	0.1	2.5	1.6%	-	-	-	10.7	43.3%	Botswana
0.2	-	7.7	2.9	10.8	2.1%	-	0.6	-	94.2	15.6%	Cameroon
0.0	-	1.4	1.9	3.3	0.8%	0.0	-	-	52.8	4.3%	Congo
1.1	-	17.4	39.8	58.4	1.9%	-	-	-	1 032.9	0.8%	Dem. Rep. of Congo
0.2	-	2.1	6.0	8.3	2.3%	-	-	-	164.9	4.8%	Côte d'Ivoire
0.6	0.0	12.2	2.1	14.9	3.8%	0.1	1.4	1.1	177.1	71.9%	Egypt
0.0	-	1.3	0.1	1.4	3.2%	-	-	-	4.6	19.2%	Eritrea
1.4	-	23.8	1.7	26.9	5.4%	0.0	-	-	76.0	15.1%	Ethiopia
0.0	-	0.1	0.1	0.3	15.4%	0.0	-	-	14.6	80.2%	Gabon
0.4	-	4.0	1.0	5.4	7.9%	0.0	0.2	-	28.7	26.4%	Ghana
0.5	-	8.1	0.6	9.2	5.2%	-	-	-	35.9	29.7%	Kenya
0.1	-	0.7	0.4	1.2	11.1%	-	-	0.2	56.6	91.8%	Libyan Arab Jamahiriya
0.1	-	4.5	0.7	5.4	2.5%	-	-	-	46.9	61.2%	Morocco
0.3	-	6.8	2.6	9.8	3.1%	0.0	0.0	-	61.4	5.2%	Mozambique
0.0	-	3.3	0.2	3.5	0.8%	-	-	-	9.8	19.6%	Namibia
1.8	-	16.4	2.8	20.9	8.4%	0.1	-	0.2	216.0	69.6%	Nigeria
0.1	-	3.4	0.3	3.8	2.7%	-	-	-	14.5	30.2%	Senegal
2.5	0.0	13.7	4.8	21.1	12.1%	0.3	0.5	1.0	397.9	85.4%	South Africa
0.6	-	41.2	2.6	44.4	1.3%	-	-	-	110.2	8.8%	Sudan
0.5	-	15.2	3.1	18.7	2.5%	-	-	-	96.3	5.8%	United Rep. of Tanzania
0.1	-	1.3	0.4	1.8	5.0%	-	-	-	11.8	14.3%	Togo
0.2	0.4	1.5	0.3	2.4	8.2%	-	-	-	30.6	71.7%	Tunisia
0.2	0.5	15.7	5.6	22.0	0.9%	0.0	-	-	146.7	2.1%	Zambia
0.2	-	5.0	0.7	6.0	4.2%	-	-	-	28.9	49.9%	Zimbabwe
2.4	-	75.0	15.0	92.4	2.6%	0.0	-	-	458.6	8.6%	Other Africa
14.4	1.5	303.7	119.7	439.2	3.3%	0.5	2.6	2.8	4 132.4	24.8%	Africa
0.0	-	0.0	0.0	0.1	37.4%	-	0.2	-	16.9	96.3%	Bahrain
2.1	0.5	18.4	3.0	24.1	8.9%	-	0.1	1.7	489.6	86.3%	Islamic Rep. of Iran
0.3	-	3.3	0.7	4.4	6.1%	-	-	0.2	107.8	89.5%	Iraq
0.3	-	0.9	0.6	1.7	15.0%	0.7	0.1	1.0	64.3	85.9%	Israel
0.1	-	0.3	0.2	0.6	8.0%	0.0	-	-	17.5	83.2%	Jordan
0.1	-	0.1	0.3	0.5	27.8%	0.1	-	0.4	63.2	96.3%	Kuwait
0.1	-	0.3	0.2	0.6	13.6%	-	-	-	16.9	84.7%	Lebanon
0.1	-	0.3	0.1	0.5	13.6%	0.0	-	-	34.2	94.4%	Oman
0.0	-	0.1	0.1	0.2	26.7%	-	-	-	34.9	96.9%	Qatar
0.8	-	2.8	2.5	6.1	13.5%	0.1	-	1.3	309.3	93.0%	Saudi Arabia
0.3	0.2	3.6	0.7	4.7	5.6%	-	-	-	64.7	82.5%	Syrian Arab Republic
0.2	-	0.5	0.4	1.0	17.6%	-	0.2	0.7	118.1	95.2%	United Arab Emirates
0.2	-	2.1	0.4	2.7	8.8%	-	-	-	22.1	66.4%	Yemen
4.6	0.7	32.7	9.2	47.1	9.7%	0.9	0.7	5.2	1 359.4	89.3%	Middle East
0.1	-	0.7	0.5	1.2	5.7%	0.0	-	-	7.1	51.3%	Albania
0.2	-	0.7	0.8	1.7	11.9%	0.1	0.3	-	18.7	79.8%	Bosnia-Herzegovina
0.3	1.1	2.2	0.9	4.6	6.7%	0.1	0.0	-	62.1	71.6%	Bulgaria
0.2	0.9	1.5	0.3	2.9	7.7%	0.0	0.1	-	25.5	77.5%	Croatia
0.0	-	0.2	0.1	0.3	9.5%	0.1	-	-	7.8	81.5%	Cyprus
0.0	-	-	0.0	0.0	29.8%	-	-	-	0.4	97.1%	Gibraltar
0.1	-	0.4	0.2	0.7	8.3%	0.1	-	-	10.9	82.2%	FYR of Macedonia
0.0	-	0.0	0.0	0.1	10.7%	0.1	-	-	2.4	88.8%	Malta
0.7	3.4	6.0	1.4	11.5	6.5%	0.1	0.7	0.0	127.4	77.2%	Romania
0.4	0.5	2.5	0.8	4.2	10.6%	1.7	0.3	0.0	58.6	78.9%	Serbia
0.2	-	0.8	0.2	1.2	14.3%	0.1	0.2	0.0	20.4	75.0%	Slovenia
2.2	5.9	15.0	5.1	28.2	7.9%	2.3	1.6	0.0	341.2	76.3%	Non-OECD Europe

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Armenia	3.4	-	0.1	0.0	3.5	96.8%	1.3	0.9	0.4	0.0	2.6	50.9%
Azerbaijan	29.4	12.6	0.1	0.0	42.1	99.8%	28.9	4.1	1.5	0.0	34.5	83.7%
Belarus	58.7	0.0	1.3	1.5	61.5	95.5%	0.8	8.4	2.1	0.0	11.3	7.4%
Estonia	14.6	0.1	0.4	0.0	15.1	97.3%	0.8	0.6	0.5	-	2.0	40.6%
Georgia	4.4	0.0	0.2	0.0	4.6	96.0%	1.4	2.1	0.6	0.0	4.1	33.2%
Kazakhstan	123.3	7.2	1.0	0.4	131.9	99.0%	21.2	9.4	2.0	1.9	34.6	61.4%
Kyrgyzstan	4.5	0.0	0.2	0.0	4.7	94.2%	0.3	2.5	0.7	0.0	3.5	7.4%
Latvia	6.8	-	0.1	0.0	6.9	98.4%	1.4	0.8	0.5	0.0	2.8	49.9%
Lithuania	11.2	0.0	0.3	0.0	11.5	97.2%	1.8	1.9	2.0	0.0	5.7	31.7%
Republic of Moldova	6.5	-	0.1	0.0	6.6	98.4%	1.5	1.1	0.4	0.0	3.1	48.7%
Russian Federation	1 505.5	14.1	29.5	148.9	1 697.9	89.5%	354.7	58.1	49.3	20.0	482.1	73.6%
Tajikistan	2.2	-	0.0	0.0	2.2	98.3%	0.5	2.1	0.7	0.0	3.3	13.7%
Turkmenistan	36.2	0.0	0.2	0.1	36.5	99.1%	15.1	4.2	0.8	0.0	20.1	75.3%
Ukraine	292.0	38.0	8.1	1.2	339.3	97.2%	53.4	20.8	9.5	0.2	83.8	63.7%
Uzbekistan	117.6	0.0	1.7	0.3	119.6	98.3%	21.5	11.0	3.2	0.0	35.7	60.1%
Former Soviet Union	2 216.1	72.0	43.4	152.5	2 484.0	92.1%	504.4	128.1	74.2	22.3	729.1	69.2%
Argentina	139.0	1.7	4.0	8.5	153.3	91.8%	17.6	71.6	9.2	1.9	100.3	17.5%
Bolivia	7.6	0.5	0.4	131.1	139.7	5.8%	3.7	10.5	1.2	4.8	20.2	18.4%
Brazil	301.6	8.0	19.5	592.9	921.9	33.6%	30.4	245.0	53.8	15.9	345.2	8.8%
Chile	54.4	0.4	2.2	0.1	57.1	96.0%	4.2	6.9	5.6	0.1	16.8	24.8%
Colombia	58.7	1.3	5.0	41.1	106.2	56.5%	11.2	36.6	5.9	1.8	55.6	20.2%
Costa Rica	4.5	-	0.5	0.0	5.0	89.6%	0.2	2.2	0.5	-	2.9	6.9%
Cuba	24.8	1.3	0.7	0.1	26.9	96.9%	1.3	7.0	2.5	-	10.7	11.8%
Dominican Republic	17.4	-	1.3	0.1	18.8	92.8%	0.6	3.7	1.5	-	5.8	9.8%
Ecuador	18.5	1.6	1.1	0.4	21.7	92.8%	4.4	8.4	1.6	0.0	14.4	30.6%
El Salvador	5.2	-	0.4	0.1	5.8	90.1%	0.4	1.4	1.0	-	2.8	13.5%
Guatemala	8.8	0.0	0.8	108.4	118.0	7.5%	1.0	7.7	1.3	9.0	19.0	5.1%
Haiti	1.4	-	0.2	-	1.6	87.3%	0.4	2.3	1.2	-	3.8	11.1%
Honduras	4.4	-	0.4	-	4.9	90.8%	0.3	2.5	0.7	-	3.4	9.2%
Jamaica	9.8	-	0.4	-	10.2	96.0%	0.2	0.6	0.5	-	1.3	12.1%
Netherlands Antilles	4.1	-	-	-	4.1	100.0%	0.1	0.0	0.0	-	0.1	57.8%
Nicaragua	3.5	-	0.2	0.0	3.7	94.8%	0.3	4.2	1.0	-	5.5	5.9%
Panama	4.7	-	0.3	-	5.0	93.8%	0.2	2.1	0.5	-	2.8	5.5%
Paraguay	3.3	-	0.3	26.1	29.7	10.9%	0.5	12.4	1.0	1.1	14.9	3.5%
Peru	26.4	0.3	1.6	20.2	48.6	55.0%	1.7	10.1	3.7	1.0	16.5	10.5%
Trinidad and Tobago	17.9	4.3	0.3	-	22.6	98.5%	12.7	0.1	1.0	0.1	13.9	91.1%
Uruguay	5.3	0.0	0.3	0.0	5.6	94.5%	0.2	17.3	0.8	-	18.3	0.8%
Venezuela	126.7	3.9	3.8	34.8	169.2	77.2%	31.4	22.1	5.3	1.6	60.4	51.9%
Other Latin America	15.1	-	0.9	10.4	26.5	57.2%	0.2	2.4	2.5	0.2	5.2	3.1%
Latin America	863.4	23.3	44.8	974.5	1 905.9	46.5%	123.0	477.0	102.3	37.5	739.7	16.6%
Bangladesh	25.3	-	1.6	5.8	32.7	77.3%	7.5	65.7	15.5	0.1	88.9	8.5%
Brunei Darussalam	4.6	0.7	0.1	7.0	12.4	43.0%	4.9	0.0	0.1	-	5.0	98.1%
Cambodia	2.4	-	-	3.2	5.6	43.1%	1.0	12.4	1.3	0.1	14.8	6.6%
Chinese Taipei	219.4	1.7	8.6	0.5	230.2	96.0%	1.3	1.1	5.3	0.0	7.7	16.5%
India	981.3	12.9	40.3	53.5	1 088.1	91.4%	84.8	375.9	101.1	2.4	564.2	15.0%
Indonesia	268.2	9.4	12.7	518.4	808.8	34.3%	54.9	78.8	39.9	3.6	177.2	31.0%
DPR of Korea	68.8	-	1.8	0.1	70.7	97.3%	10.0	3.9	3.1	0.1	17.1	58.3%
Malaysia	111.1	6.0	5.1	56.2	178.4	65.6%	28.7	5.5	4.8	1.0	40.1	71.5%
Mongolia	8.8	-	0.1	0.0	8.9	99.2%	0.1	8.5	0.3	0.2	9.0	1.1%
Myanmar	8.1	0.2	0.2	448.8	457.3	1.8%	6.4	44.2	5.7	10.9	67.1	9.5%
Nepal	3.1	-	0.1	0.1	3.3	92.5%	1.3	17.6	2.2	-	21.1	6.1%
Pakistan	97.8	0.5	4.6	0.1	103.1	95.4%	23.5	77.5	15.4	0.1	116.5	20.2%
Philippines	69.9	0.0	5.4	0.5	75.9	92.2%	4.7	31.5	12.2	0.0	48.5	9.8%
Singapore	42.7	0.2	0.5	0.1	43.5	98.5%	0.9	0.0	0.8	0.0	1.7	51.8%
Sri Lanka	10.6	-	0.5	0.1	11.2	94.9%	0.6	6.2	2.8	-	9.5	5.8%
Thailand	159.5	0.0	11.9	6.3	177.6	89.8%	12.2	54.5	12.5	0.1	79.2	15.4%
Vietnam	44.5	0.8	6.8	1.5	53.5	84.6%	11.3	51.3	9.6	0.0	72.2	15.6%
Other Asia	11.3	0.0	0.3	35.1	46.6	24.2%	2.1	15.9	4.0	0.9	22.9	9.1%
Asia	2 137.5	32.4	100.7	1 137.2	3 407.7	63.7%	256.0	850.7	236.5	19.6	1 362.8	18.8%
People's Rep. of China	3 037.9	30.8	346.0	33.2	3 447.9	89.0%	377.5	501.6	176.8	3.5	1 059.4	35.6%
Hong Kong, China	39.8	0.8	0.6	0.0	41.3	98.6%	0.8	-	1.9	-	2.7	28.9%
China	3 077.8	31.6	346.6	33.2	3 489.2	89.1%	378.3	501.6	178.8	3.5	1 062.1	35.6%

2000 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
0.0	-	0.4	0.1	0.5	1.1%	0.0	-	-	6.6	71.6%	Armenia
0.1	-	1.6	0.4	2.1	6.5%	0.0	0.0	-	78.7	90.2%	Azerbaijan
0.5	1.6	8.1	0.5	10.7	4.3%	0.1	0.0	-	83.6	71.8%	Belarus
0.2	-	0.6	0.1	0.8	19.3%	0.0	0.0	0.0	17.9	87.4%	Estonia
0.1	0.6	1.1	0.2	2.0	3.4%	0.0	-	-	10.7	54.4%	Georgia
1.9	-	9.8	4.1	15.8	11.8%	0.1	-	-	182.3	84.3%	Kazakhstan
0.1	-	1.2	0.3	1.6	8.0%	0.0	-	-	9.8	49.5%	Kyrgyzstan
0.1	-	0.9	0.2	1.1	10.4%	0.2	0.0	-	11.0	75.4%	Latvia
0.1	-	2.0	0.2	2.3	4.7%	0.2	0.0	-	19.7	66.5%	Lithuania
0.0	-	0.6	0.2	0.8	4.9%	0.0	-	-	10.4	76.8%	Republic of Moldova
6.9	12.6	36.1	36.0	91.6	7.5%	13.6	24.9	9.1	2 319.2	81.1%	Russian Federation
0.0	-	0.9	0.2	1.1	1.0%	0.0	0.9	-	7.5	35.2%	Tajikistan
0.1	0.5	2.1	0.2	2.9	1.8%	0.0	-	-	59.5	86.3%	Turkmenistan
1.1	8.8	12.0	2.6	24.4	4.5%	0.1	0.2	0.2	448.1	85.8%	Ukraine
0.6	0.1	7.5	0.9	9.1	6.5%	0.2	-	-	164.6	84.8%	Uzbekistan
11.8	24.3	84.7	46.0	166.8	7.1%	14.4	26.1	9.2	3 429.6	81.8%	Former Soviet Union
1.4	0.1	36.0	4.3	41.8	3.4%	0.3	0.1	0.2	296.0	54.0%	Argentina
0.1	-	5.5	5.7	11.3	0.8%	-	-	-	171.2	7.0%	Bolivia
4.8	7.7	123.1	31.3	166.8	2.9%	2.8	4.1	0.8	1 441.5	23.9%	Brazil
0.5	0.7	5.3	0.8	7.3	6.3%	-	0.0	0.0	81.3	73.2%	Chile
0.7	0.3	17.2	2.8	20.9	3.1%	-	0.0	0.0	182.6	39.4%	Colombia
0.1	0.1	1.3	0.1	1.6	5.0%	0.0	-	-	9.6	49.9%	Costa Rica
0.4	0.6	5.7	0.4	7.2	5.6%	0.0	-	-	44.8	61.8%	Cuba
0.2	-	1.6	0.3	2.1	8.0%	-	-	-	26.6	68.2%	Dominican Republic
0.2	-	3.5	0.4	4.1	3.9%	0.0	-	-	40.1	61.5%	Ecuador
0.1	-	1.0	0.2	1.3	7.8%	0.0	-	-	10.0	57.4%	El Salvador
0.3	-	8.5	5.7	14.4	1.8%	0.2	-	-	151.5	6.6%	Guatemala
0.1	-	1.2	0.1	1.4	4.8%	-	-	-	6.8	27.8%	Haiti
0.1	-	2.6	0.2	2.9	3.0%	-	-	-	11.2	43.0%	Honduras
0.1	-	0.4	0.2	0.6	9.3%	0.0	-	-	12.1	82.8%	Jamaica
0.0	-	0.0	0.0	0.0	22.8%	-	-	-	4.2	97.9%	Netherlands Antilles
0.1	-	2.9	0.2	3.2	2.8%	-	-	-	12.4	31.8%	Nicaragua
0.0	-	0.9	0.1	1.0	4.7%	-	-	-	8.8	55.5%	Panama
0.1	-	6.2	1.5	7.8	1.9%	-	-	-	52.5	7.5%	Paraguay
0.2	0.0	5.9	1.6	7.7	3.1%	0.1	-	-	73.0	39.4%	Peru
0.0	-	0.1	0.1	0.2	20.1%	-	-	-	36.8	95.2%	Trinidad and Tobago
0.1	-	6.1	0.1	6.3	1.7%	0.0	-	-	30.3	18.5%	Uruguay
0.6	0.0	10.2	2.5	13.3	4.2%	1.4	0.5	0.2	244.9	66.4%	Venezuela
0.1	-	2.4	0.7	3.2	3.2%	0.0	0.0	0.0	34.8	44.2%	Other Latin America
10.1	9.6	247.5	59.3	326.5	3.1%	4.9	4.7	1.2	2 983.0	34.2%	Latin America
1.4	-	16.2	1.8	19.5	7.4%	-	-	-	141.1	24.3%	Bangladesh
0.0	-	0.1	0.3	0.4	3.0%	0.1	-	-	17.9	57.3%	Brunei Darussalam
0.2	-	2.7	0.4	3.3	6.2%	-	-	-	23.7	15.2%	Cambodia
0.9	0.5	2.1	1.3	4.8	18.6%	0.1	4.1	1.6	248.5	89.8%	Chinese Taipei
23.4	1.6	149.9	27.0	202.0	11.6%	2.3	2.0	3.4	1 862.0	59.2%	India
4.0	0.2	60.3	25.8	90.4	4.5%	-	0.2	0.8	1 077.3	31.2%	Indonesia
0.4	-	2.0	0.9	3.4	12.6%	1.8	-	-	93.0	85.2%	DPR of Korea
0.5	0.5	8.4	3.6	13.0	3.7%	0.0	0.1	0.4	232.1	63.0%	Malaysia
0.1	-	4.6	0.4	5.0	1.5%	-	-	-	22.9	39.2%	Mongolia
0.7	-	10.0	19.4	30.1	2.4%	-	-	-	554.4	2.8%	Myanmar
0.6	-	3.2	0.4	4.2	13.3%	-	-	-	28.6	17.2%	Nepal
3.0	0.7	17.8	3.1	24.6	12.4%	-	-	0.3	244.6	51.1%	Pakistan
1.4	0.0	8.9	2.2	12.5	10.9%	-	-	0.2	137.0	55.5%	Philippines
0.1	5.6	0.0	0.3	6.0	1.4%	0.7	0.4	0.3	52.6	83.3%	Singapore
0.2	-	1.4	0.4	2.0	11.6%	-	-	-	22.7	50.2%	Sri Lanka
3.6	0.4	13.5	2.4	19.9	18.1%	-	-	0.5	277.2	63.2%	Thailand
1.2	-	16.6	1.9	19.7	6.0%	-	-	-	145.4	39.7%	Vietnam
0.5	-	8.3	1.9	10.7	4.6%	0.0	-	-	80.2	17.3%	Other Asia
42.2	9.5	326.1	93.6	471.5	9.0%	5.0	6.8	7.6	5 261.3	46.9%	Asia
29.2	11.0	303.6	48.4	392.2	7.5%	62.7	8.0	10.5	4 980.7	69.8%	People's Rep. of China
0.2	-	-	0.3	0.5	33.4%	-	-	0.2	44.6	93.3%	Hong Kong, China
29.4	11.0	303.6	48.7	392.7	7.5%	62.7	8.0	10.6	5 025.3	70.0%	China

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
World *	27 129.1	349.1	1 212.8	5 562.6	34 253.6	80.2%	2 685.3	3 160.8	1 221.0	252.5	7 319.6	36.7%
<i>Annex I Parties</i>	<i>14 141.0</i>	<i>125.8</i>	<i>343.8</i>	<i>168.6</i>	<i>14 779.2</i>	<i>96.5%</i>	<i>980.5</i>	<i>663.0</i>	<i>441.0</i>	<i>19.8</i>	<i>2 104.2</i>	<i>46.6%</i>
<i>Annex II Parties</i>	<i>11 321.4</i>	<i>67.6</i>	<i>241.3</i>	<i>121.9</i>	<i>11 752.2</i>	<i>96.9%</i>	<i>407.9</i>	<i>525.8</i>	<i>304.2</i>	<i>10.9</i>	<i>1 248.8</i>	<i>32.7%</i>
<i>North America</i>	<i>6 330.5</i>	<i>29.5</i>	<i>79.6</i>	<i>70.6</i>	<i>6 510.1</i>	<i>97.7%</i>	<i>253.6</i>	<i>216.7</i>	<i>161.0</i>	<i>6.1</i>	<i>637.4</i>	<i>39.8%</i>
<i>Europe</i>	<i>3 348.0</i>	<i>18.0</i>	<i>111.2</i>	<i>11.5</i>	<i>3 488.7</i>	<i>96.5%</i>	<i>112.2</i>	<i>184.1</i>	<i>116.4</i>	<i>1.7</i>	<i>414.5</i>	<i>27.1%</i>
<i>Pacific</i>	<i>1 642.9</i>	<i>20.1</i>	<i>50.5</i>	<i>39.8</i>	<i>1 753.4</i>	<i>94.8%</i>	<i>42.1</i>	<i>125.0</i>	<i>26.8</i>	<i>3.0</i>	<i>196.9</i>	<i>21.4%</i>
<i>Annex I EIT</i>	<i>2 603.2</i>	<i>55.9</i>	<i>80.3</i>	<i>45.8</i>	<i>2 785.3</i>	<i>95.5%</i>	<i>562.3</i>	<i>115.5</i>	<i>104.4</i>	<i>8.9</i>	<i>791.1</i>	<i>71.1%</i>
<i>Non-Annex I Parties</i>	<i>12 044.3</i>	<i>223.2</i>	<i>869.0</i>	<i>5 393.9</i>	<i>18 530.5</i>	<i>66.2%</i>	<i>1 703.4</i>	<i>2 497.8</i>	<i>780.1</i>	<i>232.7</i>	<i>5 214.0</i>	<i>32.7%</i>
<i>Annex I Kyoto Parties</i>	<i>8 090.9</i>	<i>98.5</i>	<i>249.3</i>	<i>136.8</i>	<i>8 575.5</i>	<i>95.5%</i>	<i>744.5</i>	<i>442.6</i>	<i>276.4</i>	<i>16.8</i>	<i>1 480.3</i>	<i>50.3%</i>
Int. marine bunkers	522.3	-	-	-	522.3	100.0%	1.4	-	-	-	1.4	-
Int. aviation bunkers	421.6	-	-	-	421.6	100.0%	0.1	-	-	-	0.1	-
Non-OECD Total	13 282.3	256.5	890.6	5 395.9	19 825.3	68.3%	2 155.8	2 523.4	833.3	239.2	5 751.7	37.5%
OECD Total	12 903.0	92.5	322.2	166.7	13 484.4	96.4%	528.1	637.4	387.8	13.2	1 566.5	33.7%
Canada	558.8	4.5	9.3	40.8	613.3	91.8%	28.8	26.1	31.2	3.2	89.3	32.2%
Mexico	389.8	8.6	19.1	42.4	459.8	86.6%	51.5	54.2	20.4	2.1	128.2	40.2%
United States	5 771.7	25.0	70.3	29.8	5 896.8	98.3%	224.8	190.6	129.8	2.9	548.1	41.0%
OECD N. America	6 720.2	38.1	98.6	113.0	6 969.9	97.0%	305.0	271.0	181.4	8.2	765.6	39.8%
Australia	388.8	2.9	5.2	15.8	412.7	94.9%	37.6	69.6	16.5	2.7	126.5	29.7%
Japan	1 220.7	16.5	44.8	23.4	1 305.4	94.8%	3.5	30.4	8.6	0.3	42.8	8.1%
Korea	468.0	11.0	25.6	0.0	504.7	94.9%	6.4	12.4	13.2	0.1	32.1	19.9%
New Zealand	33.5	0.6	0.5	0.7	35.2	96.7%	1.0	24.9	1.7	0.0	27.6	3.6%
OECD Pacific	2 111.0	31.1	76.1	39.9	2 258.1	94.9%	48.4	137.4	40.0	3.2	229.0	21.2%
Austria	75.0	0.5	3.4	0.1	78.9	95.6%	1.8	4.1	2.5	0.0	8.5	21.7%
Belgium	112.6	0.0	4.7	0.2	117.5	95.8%	1.2	5.7	3.2	0.0	10.1	11.6%
Czech Republic	119.6	1.6	3.0	0.3	124.5	97.3%	5.7	3.9	1.9	0.0	11.5	49.4%
Denmark	48.1	0.3	1.6	0.2	50.2	96.4%	1.3	5.2	1.5	-	7.9	16.4%
Finland	55.5	0.4	1.0	0.3	57.2	97.8%	0.7	2.0	7.0	0.0	9.7	7.4%
France	388.3	2.8	12.2	4.1	407.5	96.0%	34.2	36.9	6.0	0.1	77.3	44.3%
Germany	811.3	2.3	18.8	1.7	834.1	97.5%	21.7	29.6	16.1	0.2	67.6	32.1%
Greece	95.0	0.0	7.1	0.2	102.4	92.9%	1.9	3.6	1.7	0.0	7.3	26.3%
Hungary	56.4	0.4	1.7	0.2	58.7	96.7%	2.3	2.6	2.9	0.0	7.8	29.1%
Iceland	2.2	0.0	0.1	0.0	2.3	97.6%	0.1	0.2	0.1	0.0	0.4	18.5%
Ireland	43.4	-	2.4	0.3	46.0	94.3%	1.8	11.8	1.8	0.0	15.3	11.9%
Italy	457.0	0.4	22.5	1.2	481.0	95.1%	6.0	16.2	18.5	0.1	40.8	14.7%
Luxembourg	11.2	-	0.4	-	11.6	96.3%	0.1	0.9	0.1	0.0	1.1	10.4%
Netherlands	182.7	0.8	0.9	0.1	184.5	99.5%	5.0	9.2	7.0	0.1	21.3	23.4%
Norway	36.3	1.2	0.8	0.7	39.0	96.1%	12.6	2.1	2.1	0.1	16.9	74.6%
Poland	293.5	0.9	7.2	0.8	302.3	97.4%	43.4	15.4	11.2	0.0	70.0	62.0%
Portugal	62.7	0.0	4.4	0.2	67.3	93.2%	1.7	4.3	5.5	0.7	12.2	13.8%
Slovak Republic	38.1	0.2	2.1	0.1	40.4	94.7%	0.7	1.5	1.7	0.0	3.9	18.2%
Spain	339.7	1.1	19.2	0.8	360.7	94.5%	3.8	20.6	11.6	0.3	36.3	10.4%
Sweden	50.3	0.9	1.8	0.1	53.1	96.4%	1.1	3.2	7.0	0.0	11.3	9.9%
Switzerland	44.5	0.0	1.8	0.0	46.4	96.0%	0.9	3.2	0.6	0.0	4.7	19.8%
Turkey	216.4	2.3	22.2	0.9	241.8	90.4%	10.3	21.6	32.3	0.0	64.3	16.0%
United Kingdom	532.3	7.2	8.2	1.3	549.1	98.3%	16.3	25.1	24.4	0.0	65.8	24.8%
OECD Europe	4 071.8	23.4	147.4	13.8	4 256.4	96.2%	174.6	229.0	166.4	1.8	571.9	30.5%
<i>European Union - 27</i>	<i>3 973.2</i>	<i>20.8</i>	<i>135.2</i>	<i>12.4</i>	<i>4 141.7</i>	<i>96.4%</i>	<i>167.9</i>	<i>217.5</i>	<i>148.6</i>	<i>1.8</i>	<i>535.8</i>	<i>31.3%</i>

* Total World includes Non-OECD total, OECD total as well as international bunkers.

Sources: IEA, Sectoral Approach for CO₂ emissions from fuel combustion. EDGAR 4 database for other emissions. In general, estimates for emissions other than CO₂ from fuel combustion are subject to significantly larger uncertainties.

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total		
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
289.1	162.1	1 981.3	565.0	2 997.5	9.6%	486.5	93.6	144.2	45 295.0	67.2%	World *
145.2	129.0	537.6	135.4	947.2	15.3%	352.3	64.8	84.7	18 332.3	84.0%	Annex I Parties
122.9	83.2	421.0	99.6	726.7	16.9%	317.9	36.1	73.1	14 154.7	84.2%	Annex II Parties
80.7	25.8	202.6	48.3	357.3	22.6%	199.4	15.2	46.8	7 766.3	86.2%	North America
27.8	52.5	148.6	34.7	263.7	10.6%	71.5	11.5	21.4	4 271.2	82.1%	Europe
14.4	4.9	69.8	16.6	105.7	13.6%	47.0	9.3	4.9	2 117.2	81.2%	Pacific
18.7	42.0	94.8	32.2	187.7	10.0%	31.4	28.2	10.0	3 833.7	84.5%	Annex I EIT
135.8	33.1	1 443.7	407.7	2 020.3	6.7%	134.3	28.8	59.5	25 987.4	54.3%	Non-Annex I Parties
67.8	99.4	328.3	90.1	585.5	11.6%	161.1	55.2	40.4	10 898.1	82.6%	Annex I Kyoto Parties
4.4	-	-	19.2	23.7	0.2	-	-	-	547.3	96.5%	Int. marine bunkers
3.6	-	-	2.7	6.4	0.6	-	-	-	428.0	99.4%	Int. aviation bunkers
140.0	60.8	1 475.5	426.3	2 102.6	6.7%	154.0	53.6	64.2	27 951.5	56.7%	Non-OECD Total
141.0	101.3	505.8	116.8	864.9	16.3%	332.5	40.0	80.0	16 368.3	83.5%	OECD Total
7.3	2.2	23.6	7.0	40.2	18.2%	11.6	6.2	4.1	764.8	78.4%	Canada
3.4	1.2	32.0	6.0	42.5	7.9%	4.1	-	0.4	635.1	71.4%	Mexico
73.4	23.5	179.0	41.3	317.2	23.1%	187.8	9.0	42.7	7 001.5	87.1%	United States
84.0	26.9	234.6	54.3	399.8	21.0%	203.6	15.2	47.2	8 401.4	85.1%	OECD N. America
4.7	1.8	49.3	7.2	63.0	7.5%	5.2	0.8	0.5	608.7	71.3%	Australia
9.2	3.1	8.3	9.1	29.8	31.0%	41.1	8.3	4.4	1 431.7	87.3%	Japan
3.0	2.6	4.9	3.1	13.5	22.4%	3.2	2.5	4.6	560.5	87.1%	Korea
0.5	-	12.2	0.3	12.9	3.5%	0.7	0.2	0.1	76.8	46.3%	New Zealand
17.4	7.5	74.6	19.7	119.2	14.6%	50.2	11.8	9.5	2 677.7	82.5%	OECD Pacific
1.0	0.4	2.3	0.7	4.4	23.0%	1.9	0.2	0.3	94.2	83.1%	Austria
0.8	1.7	2.9	1.2	6.6	12.5%	1.9	0.0	0.2	136.3	84.1%	Belgium
3.4	1.3	3.3	0.9	8.9	38.7%	1.1	0.0	0.0	146.0	89.3%	Czech Republic
0.6	0.5	4.6	0.5	6.3	9.4%	1.3	0.0	0.1	65.8	76.4%	Denmark
1.9	1.2	3.0	1.1	7.1	26.2%	0.8	0.0	0.1	74.8	78.1%	Finland
3.6	8.3	32.8	4.4	49.1	7.3%	12.9	0.7	1.9	549.3	78.1%	France
5.8	15.8	29.5	5.4	56.6	10.3%	15.3	1.4	14.9	989.8	85.0%	Germany
1.0	0.3	3.5	1.2	6.0	16.3%	1.6	0.1	0.1	117.5	83.4%	Greece
0.3	1.8	4.2	0.6	7.0	5.0%	1.2	0.3	0.0	75.0	79.2%	Hungary
0.0	0.0	0.3	0.0	0.4	10.3%	0.0	0.1	0.0	3.2	72.0%	Iceland
0.3	-	6.8	0.4	7.5	4.4%	0.9	0.2	0.1	70.0	65.1%	Ireland
3.3	7.9	12.5	4.9	28.6	11.6%	12.4	0.4	1.1	564.4	82.7%	Italy
0.1	-	0.3	0.1	0.5	20.9%	0.1	0.0	-	13.3	86.0%	Luxembourg
0.9	6.8	5.8	1.2	14.6	6.0%	3.2	0.3	0.2	224.1	84.5%	Netherlands
0.4	1.8	1.8	0.7	4.7	7.8%	0.3	4.6	0.3	65.8	76.6%	Norway
3.9	6.2	17.4	2.7	30.2	13.0%	1.8	0.5	0.2	405.0	84.4%	Poland
0.7	0.6	2.6	2.0	6.0	12.0%	0.7	0.0	0.1	86.2	75.5%	Portugal
0.4	1.3	1.3	0.3	3.4	13.2%	0.3	0.1	-	48.1	82.0%	Slovak Republic
3.0	2.0	16.6	5.0	26.5	11.2%	6.3	2.0	0.7	432.6	80.3%	Spain
1.1	0.4	3.5	0.8	5.9	19.2%	1.1	0.7	0.2	72.4	73.9%	Sweden
0.4	0.1	1.4	0.5	2.4	18.0%	1.6	0.1	0.4	55.6	82.5%	Switzerland
3.6	3.9	21.8	3.5	32.8	11.0%	2.9	0.5	1.6	343.9	67.6%	Turkey
2.9	4.7	18.4	4.6	30.6	9.4%	9.2	0.6	0.6	655.8	85.2%	United Kingdom
39.6	66.9	196.6	42.8	345.8	11.4%	78.8	12.9	23.3	5 289.1	81.5%	OECD Europe
36.8	65.4	184.4	40.8	327.4	11.2%	76.9	8.1	20.9	5 110.9	82.2%	European Union - 27

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Non-OECD Total	13 282.3	256.5	890.6	5 395.9	19 825.3	68.3%	2 155.8	2 523.4	833.3	239.2	5 751.7	37.5%
Algeria	78.5	7.3	5.4	0.1	91.3	94.0%	45.1	4.5	4.7	0.0	54.2	83.2%
Angola	7.0	1.6	0.5	537.7	546.8	1.6%	7.1	12.7	1.9	23.8	45.4	15.6%
Benin	2.5	-	0.1	19.4	22.0	11.4%	0.6	2.0	1.0	0.5	4.1	15.6%
Botswana	4.3	-	0.2	-	4.5	96.3%	0.4	3.8	0.3	0.0	4.5	8.6%
Cameroon	2.9	3.1	0.4	34.1	40.6	14.9%	7.2	7.9	2.5	0.9	18.5	39.1%
Congo	0.9	0.5	0.0	37.5	39.0	3.7%	1.8	1.8	0.5	1.5	5.6	32.2%
Dem. Rep. of Congo	2.3	0.0	0.2	831.3	833.8	0.3%	5.8	13.1	6.3	31.3	56.4	10.2%
Côte d'Ivoire	5.8	0.0	0.3	113.0	119.1	4.9%	1.9	1.9	2.4	4.8	11.0	16.9%
Egypt	151.9	1.7	14.1	0.9	168.7	91.1%	23.8	14.9	8.3	0.0	47.0	50.7%
Eritrea	0.6	-	0.0	-	0.6	96.6%	0.3	1.8	0.4	-	2.5	11.2%
Ethiopia	4.8	-	0.7	0.1	5.5	87.1%	7.5	37.9	6.9	-	52.2	14.3%
Gabon	2.1	3.4	0.1	6.1	11.7	47.0%	7.4	0.1	0.3	0.4	8.2	90.4%
Ghana	6.4	-	0.8	9.5	16.7	38.4%	2.1	3.6	2.9	0.4	9.0	23.3%
Kenya	7.3	-	1.1	0.0	8.4	86.3%	3.7	14.5	3.9	-	22.1	16.9%
Libyan Arab Jamahiriya	42.5	1.8	1.7	0.0	46.0	96.3%	12.7	0.8	1.1	0.0	14.7	86.3%
Morocco	38.6	-	4.6	0.2	43.4	88.9%	0.8	5.5	4.2	0.0	10.6	8.0%
Mozambique	1.5	-	0.2	31.5	33.2	4.6%	2.9	5.7	2.3	2.0	12.8	22.7%
Namibia	2.8	-	0.0	-	2.8	100.0%	0.0	4.8	0.2	0.0	5.1	0.3%
Nigeria	51.4	35.9	1.1	6.5	94.9	92.0%	89.8	25.8	14.5	0.2	130.3	68.9%
Senegal	4.6	-	1.1	-	5.7	81.0%	0.7	4.9	1.6	-	7.1	9.9%
South Africa	330.9	15.7	5.8	4.2	356.7	97.2%	28.9	20.0	12.5	2.4	63.8	45.4%
Sudan	10.0	0.0	0.1	0.0	10.2	98.6%	4.8	57.5	5.2	-	67.4	7.1%
United Rep. of Tanzania	5.1	-	0.6	64.7	70.4	7.3%	4.0	20.2	4.2	3.6	32.0	12.6%
Togo	1.0	-	0.3	7.3	8.6	11.3%	0.7	1.2	0.7	0.4	2.9	23.5%
Tunisia	19.5	0.7	3.1	0.1	23.5	86.3%	4.5	2.1	1.5	0.0	8.2	55.6%
Zambia	2.1	-	0.3	119.5	121.9	1.7%	1.3	11.4	1.2	5.4	19.3	6.7%
Zimbabwe	10.4	0.4	0.2	-	11.0	97.7%	1.1	7.0	1.5	0.0	9.5	11.4%
Other Africa	25.5	2.6	1.1	217.7	246.8	11.4%	19.3	102.7	17.3	9.6	148.9	13.0%
Africa	823.4	74.7	44.3	2 041.4	2 983.9	30.1%	286.3	389.7	110.2	87.2	873.4	32.8%
Bahrain	18.1	0.0	0.2	-	18.3	99.1%	2.5	0.0	0.3	0.0	2.8	88.7%
Islamic Rep. of Iran	410.5	14.5	15.5	0.2	440.9	96.4%	81.0	20.9	12.6	0.1	114.6	70.6%
Iraq	85.4	1.5	1.3	0.0	88.1	98.5%	9.3	3.0	3.7	0.0	15.9	58.4%
Israel	60.2	-	2.2	0.0	62.5	96.4%	0.6	1.1	1.8	0.0	3.5	18.4%
Jordan	17.9	-	1.7	0.0	19.6	91.3%	0.4	0.4	1.0	-	1.8	25.0%
Kuwait	74.3	2.4	0.9	-	77.6	98.8%	13.4	0.2	0.8	0.0	14.4	93.4%
Lebanon	15.8	-	1.9	0.0	17.7	89.0%	0.1	0.3	0.7	-	1.0	9.7%
Oman	28.0	3.3	1.2	-	32.4	96.4%	16.8	0.5	0.5	-	17.8	94.1%
Qatar	37.6	0.6	0.6	-	38.8	98.4%	15.2	0.1	0.5	0.0	15.7	96.5%
Saudi Arabia	320.6	1.4	11.1	0.0	333.2	96.7%	40.3	1.9	5.7	0.2	48.2	83.6%
Syrian Arab Republic	47.7	0.8	2.0	0.1	50.6	96.0%	6.7	3.5	2.3	0.0	12.5	53.8%
United Arab Emirates	110.0	1.2	4.1	-	115.3	96.4%	21.7	0.6	1.0	-	23.3	93.1%
Yemen	18.8	0.0	0.8	-	19.6	96.1%	1.1	3.7	1.9	-	6.7	17.0%
Middle East	1 245.0	25.8	43.5	0.4	1 314.6	96.7%	209.1	36.1	32.6	0.4	278.1	75.2%
Albania	4.6	0.0	0.2	0.0	4.8	95.6%	0.5	1.7	0.2	0.0	2.4	20.0%
Bosnia-Herzegovina	15.7	-	0.4	0.0	16.1	97.2%	1.3	1.2	0.3	0.0	2.7	46.7%
Bulgaria	45.8	0.4	4.1	0.0	50.3	91.9%	1.4	2.1	7.3	0.1	10.9	13.0%
Croatia	20.7	0.0	1.7	0.0	22.5	92.2%	2.2	1.3	0.3	0.0	3.9	57.0%
Cyprus	7.0	-	0.7	0.0	7.7	90.7%	0.0	0.3	0.3	-	0.6	1.8%
Gibraltar	0.4	-	-	0.0	0.4	99.9%	0.0	-	0.0	-	0.0	8.2%
FYR of Macedonia	8.8	-	0.3	0.0	9.2	96.4%	0.4	0.7	0.3	0.0	1.4	32.1%
Malta	2.7	-	0.0	-	2.7	99.8%	0.0	0.0	0.1	-	0.2	1.2%
Romania	91.7	0.5	5.3	0.2	97.7	94.4%	10.4	8.8	5.2	0.0	24.3	42.7%
Serbia	45.3	0.0	1.2	0.0	46.5	97.4%	3.2	3.4	1.1	0.0	7.8	41.5%
Slovenia	15.6	-	1.6	0.0	17.2	90.6%	1.1	1.1	1.3	0.0	3.5	30.7%
Non-OECD Europe	258.3	0.9	15.6	0.3	275.1	94.2%	20.5	20.5	16.5	0.2	57.7	35.6%

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

Energy	N ₂ O					HFCs	PFCs	SF ₆	Total		
	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
140.0	60.8	1 475.5	426.3	2 102.6	6.7%	154.0	53.6	64.2	27 951.5	56.7%	Non-OECD Total
0.4	0.7	2.9	0.9	4.9	7.5%	0.2	-	0.3	150.9	87.0%	Algeria
0.1	-	14.9	23.8	38.9	0.4%	0.0	-	-	631.1	2.5%	Angola
0.1	-	1.8	1.0	2.9	4.0%	-	-	-	29.0	11.3%	Benin
0.0	-	2.8	0.2	3.1	1.4%	-	-	-	12.1	39.3%	Botswana
0.2	-	6.9	2.0	9.1	2.6%	-	0.4	-	68.6	19.7%	Cameroon
0.0	-	1.8	1.7	3.6	1.0%	0.0	-	-	48.1	6.8%	Congo
1.2	-	17.1	36.3	54.6	2.2%	-	-	-	944.9	1.0%	Dem. Rep. of Congo
0.2	-	2.2	5.0	7.4	2.7%	-	-	-	137.5	5.8%	Côte d'Ivoire
1.3	0.3	15.2	2.2	19.0	6.7%	0.3	1.7	1.1	237.8	75.1%	Egypt
0.0	-	1.1	0.1	1.2	3.8%	-	-	-	4.3	21.6%	Eritrea
1.6	-	27.1	1.8	30.5	5.2%	0.0	-	-	88.3	15.7%	Ethiopia
0.0	-	0.1	0.3	0.5	10.0%	0.0	-	-	20.4	63.6%	Gabon
0.5	-	3.5	1.0	4.9	9.3%	0.0	0.0	-	30.6	29.3%	Ghana
0.5	-	9.4	0.7	10.5	5.0%	-	-	-	41.1	28.1%	Kenya
0.1	-	0.7	0.5	1.3	11.2%	-	-	0.3	62.3	91.8%	Libyan Arab Jamahiriya
0.2	-	4.8	0.8	5.8	3.0%	-	-	-	59.8	66.3%	Morocco
0.3	-	6.8	2.4	9.5	3.4%	0.1	0.2	-	55.8	8.5%	Mozambique
0.0	-	3.6	0.2	3.8	1.1%	-	-	-	11.7	24.7%	Namibia
2.0	-	16.7	2.9	21.6	9.1%	0.3	-	0.3	247.4	72.3%	Nigeria
0.1	-	3.6	0.4	4.1	2.7%	-	-	-	16.9	32.2%	Senegal
2.8	0.2	14.4	6.6	24.0	11.8%	0.5	0.5	1.5	447.1	84.6%	South Africa
0.6	-	45.8	3.0	49.5	1.3%	-	-	-	127.1	12.1%	Sudan
0.5	-	17.1	4.0	21.6	2.5%	-	-	-	124.1	7.8%	United Rep. of Tanzania
0.1	-	1.2	0.5	1.7	5.6%	-	-	-	13.3	13.2%	Togo
0.2	0.3	1.6	0.3	2.4	8.8%	-	-	-	34.0	73.6%	Tunisia
0.2	0.4	18.0	6.5	25.1	0.9%	0.0	-	-	166.2	2.1%	Zambia
0.2	-	5.2	0.7	6.1	3.7%	-	-	-	26.7	45.3%	Zimbabwe
2.8	-	79.3	15.7	97.8	2.8%	0.1	-	-	493.6	10.2%	Other Africa
16.6	2.0	325.3	121.5	465.4	3.6%	1.6	2.9	3.6	4 330.7	27.7%	Africa
0.0	-	0.0	0.0	0.1	39.7%	-	0.3	-	21.5	96.2%	Bahrain
2.4	0.6	20.1	3.6	26.6	9.0%	-	0.1	2.5	584.7	87.0%	Islamic Rep. of Iran
0.3	-	2.2	0.9	3.4	9.7%	-	-	0.1	107.6	89.7%	Iraq
0.3	-	0.9	0.6	1.8	15.3%	1.3	0.1	0.6	69.8	87.6%	Israel
0.1	-	0.4	0.2	0.7	8.2%	0.1	-	-	22.2	83.0%	Jordan
0.2	-	0.1	0.4	0.6	27.7%	0.5	-	0.4	93.6	96.5%	Kuwait
0.1	-	0.4	0.2	0.7	12.6%	-	-	-	19.4	82.2%	Lebanon
0.1	-	0.4	0.1	0.6	16.0%	0.2	-	-	51.0	94.4%	Oman
0.1	-	0.0	0.1	0.2	33.9%	-	-	-	54.7	97.6%	Qatar
0.9	-	3.0	2.6	6.5	14.0%	0.2	-	2.0	390.1	93.1%	Saudi Arabia
0.2	0.3	4.3	0.7	5.5	4.4%	-	-	-	68.6	81.0%	Syrian Arab Republic
0.2	-	0.5	0.4	1.2	18.3%	-	0.3	0.8	140.8	94.5%	United Arab Emirates
0.4	-	2.4	0.5	3.3	11.2%	-	-	-	29.6	68.9%	Yemen
5.3	0.9	34.7	10.3	51.1	10.3%	2.3	0.8	6.3	1 653.3	89.8%	Middle East
0.1	-	0.8	0.2	1.0	7.1%	0.1	-	-	8.3	61.8%	Albania
0.3	-	0.7	0.2	1.2	24.7%	0.4	0.1	-	20.6	83.6%	Bosnia-Herzegovina
0.3	1.2	2.0	0.7	4.2	8.2%	0.4	0.0	-	65.8	72.9%	Bulgaria
0.2	0.8	1.5	0.3	2.9	8.5%	0.0	0.0	-	29.3	79.2%	Croatia
0.0	-	0.2	0.1	0.3	13.0%	0.2	-	-	8.8	79.9%	Cyprus
0.0	-	-	0.0	0.0	34.0%	-	-	-	0.5	97.3%	Gibraltar
0.1	-	0.4	0.1	0.6	15.9%	0.1	-	-	11.3	83.1%	FYR of Macedonia
0.0	-	0.0	0.0	0.1	11.5%	0.1	-	-	3.1	88.6%	Malta
0.7	3.1	6.5	1.3	11.5	5.9%	0.4	0.3	0.0	134.3	76.9%	Romania
0.6	0.5	2.9	0.6	4.6	12.8%	4.4	0.1	0.0	63.4	77.5%	Serbia
0.2	-	0.8	0.2	1.2	13.2%	0.4	0.1	0.0	22.3	75.3%	Slovenia
2.5	5.6	15.8	3.6	27.6	9.2%	6.5	0.7	0.0	367.5	76.8%	Non-OECD Europe

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

	CO ₂						CH ₄					
	Fuel comb.	Fugitive	Industrial processes	Other	Total	Share of energy	Energy	Agricult.	Waste	Other	Total	Share of energy
Armenia	4.1	-	0.3	0.0	4.4	93.3%	1.5	1.1	0.4	0.0	3.0	50.8%
Azerbaijan	32.0	12.6	0.7	0.0	45.3	98.4%	30.0	5.0	1.6	0.0	36.6	82.0%
Belarus	62.1	0.0	2.1	1.1	65.2	95.2%	0.9	8.1	2.5	0.0	11.5	7.6%
Estonia	16.9	0.1	0.4	0.0	17.4	97.7%	0.9	0.6	0.6	-	2.1	42.3%
Georgia	4.3	0.0	0.2	0.0	4.5	94.8%	1.6	2.2	0.6	0.0	4.4	36.1%
Kazakhstan	165.2	6.4	2.3	0.3	174.2	98.5%	31.2	11.9	2.0	2.0	47.1	66.2%
Kyrgyzstan	5.0	0.0	0.4	0.0	5.5	92.4%	0.2	2.6	0.7	0.0	3.6	6.8%
Latvia	7.6	-	0.2	0.0	7.7	97.7%	1.7	0.9	0.6	0.0	3.1	53.6%
Lithuania	13.5	0.0	0.4	0.0	14.0	96.9%	1.8	1.9	1.9	0.0	5.5	32.0%
Republic of Moldova	7.9	-	0.3	0.0	8.2	96.4%	1.5	1.0	0.8	0.0	3.4	45.2%
Russian Federation	1 516.2	26.9	37.6	42.7	1 623.4	95.1%	446.3	51.0	57.2	8.3	562.8	79.3%
Tajikistan	2.4	0.0	0.1	-	2.5	94.8%	0.5	2.7	0.7	0.0	3.9	12.8%
Turkmenistan	41.4	0.0	0.3	0.1	41.8	99.0%	21.1	6.1	0.9	0.0	28.0	75.2%
Ukraine	305.7	25.0	13.0	0.3	344.0	96.1%	43.7	16.4	10.0	0.3	70.4	62.1%
Uzbekistan	108.4	0.0	2.4	0.3	111.1	97.6%	22.7	13.4	3.5	0.0	39.6	57.3%
Former Soviet Union	2 292.5	71.1	60.6	44.9	2 469.1	95.7%	605.4	124.9	83.9	10.8	824.9	73.4%
Argentina	151.0	2.4	4.9	9.1	167.3	91.7%	19.2	71.8	9.3	1.4	101.8	18.9%
Bolivia	9.8	0.4	0.6	219.3	230.0	4.4%	7.8	10.4	1.3	10.9	30.3	25.6%
Brazil	325.7	6.6	17.7	1 448.9	1 798.9	18.5%	37.5	300.6	61.2	92.9	492.2	7.6%
Chile	62.8	0.3	1.9	0.1	65.1	97.0%	4.4	7.2	6.4	0.2	18.1	24.4%
Colombia	56.9	1.1	4.9	24.2	87.1	66.6%	11.5	39.5	6.5	0.5	58.1	19.9%
Costa Rica	5.4	-	0.6	0.0	6.0	90.5%	0.2	1.7	0.6	-	2.6	9.5%
Cuba	25.9	1.3	0.7	0.0	27.8	97.6%	1.1	5.9	2.5	-	9.5	11.2%
Dominican Republic	17.5	-	1.1	0.1	18.7	93.5%	0.5	3.9	1.7	-	6.1	7.8%
Ecuador	23.6	1.9	1.4	1.6	28.5	89.2%	5.4	9.9	1.8	0.1	17.1	31.2%
El Salvador	5.9	-	0.4	0.2	6.5	90.9%	0.4	1.7	1.1	-	3.1	12.4%
Guatemala	11.0	0.0	1.2	37.4	49.7	22.2%	1.0	4.1	1.5	1.7	8.3	12.4%
Haiti	2.0	-	0.2	-	2.2	89.6%	0.5	2.3	1.3	-	4.0	12.1%
Honduras	6.9	-	0.5	-	7.5	92.8%	0.4	4.1	0.7	-	5.2	7.2%
Jamaica	10.6	-	0.5	-	11.1	95.2%	0.1	0.7	0.5	-	1.3	11.4%
Netherlands Antilles	4.2	-	-	-	4.2	100.0%	0.1	0.0	0.1	-	0.1	55.6%
Nicaragua	4.1	-	0.2	0.0	4.4	94.3%	0.4	4.5	1.1	-	6.0	6.6%
Panama	5.7	-	0.4	-	6.1	93.2%	0.1	2.5	0.5	-	3.2	4.0%
Paraguay	3.4	-	0.3	20.3	24.0	14.3%	0.6	12.9	1.1	0.7	15.4	3.9%
Peru	28.5	0.4	2.0	10.9	41.8	69.2%	2.3	10.5	4.0	0.3	17.2	13.5%
Trinidad and Tobago	30.7	0.0	0.3	-	31.0	99.0%	8.4	0.1	1.3	0.2	10.1	83.9%
Uruguay	5.3	-	0.2	0.0	5.5	95.0%	0.3	18.5	0.8	0.0	19.6	1.5%
Venezuela	136.5	3.6	2.6	44.7	187.3	74.8%	29.0	24.5	5.6	2.1	61.2	47.4%
Other Latin America	17.0	-	1.0	10.3	28.2	60.1%	0.2	2.5	2.7	0.2	5.6	2.9%
Latin America	950.3	17.9	43.7	1 827.0	2 838.9	34.1%	131.5	539.6	113.6	111.5	896.2	14.7%
Bangladesh	36.5	-	2.3	5.9	44.6	81.8%	9.3	65.1	17.9	0.1	92.4	10.0%
Brunei Darussalam	5.1	0.7	0.1	11.5	17.4	33.3%	5.1	0.0	0.1	0.5	5.8	89.2%
Cambodia	3.7	-	-	31.1	34.8	10.7%	1.0	15.4	1.6	2.3	20.2	4.9%
Chinese Taipei	262.0	1.2	9.2	0.5	272.9	96.5%	1.5	1.1	5.8	0.0	8.4	17.8%
India	1 159.5	25.3	58.2	44.9	1 288.0	92.0%	92.9	375.9	113.4	1.8	584.0	15.9%
Indonesia	324.2	6.6	15.2	837.7	1 183.8	28.0%	53.4	97.0	50.8	7.8	208.9	25.5%
DPR of Korea	74.3	-	2.5	0.0	76.8	96.7%	10.7	4.3	3.2	0.1	18.2	58.6%
Malaysia	152.8	6.1	7.9	69.9	236.6	67.1%	32.2	5.8	5.7	2.8	46.5	69.3%
Mongolia	9.6	0.0	0.1	0.0	9.7	99.2%	0.2	5.6	0.3	0.0	6.1	2.5%
Myanmar	13.4	0.4	0.2	382.1	396.1	3.5%	9.8	53.3	6.4	7.8	77.2	12.6%
Nepal	3.0	-	0.1	0.2	3.3	90.7%	1.3	18.4	2.5	0.0	22.1	5.9%
Pakistan	118.9	0.3	7.7	0.1	127.0	93.8%	32.5	87.3	17.6	0.1	137.4	23.7%
Philippines	72.1	0.3	6.9	0.3	79.6	91.0%	4.8	33.1	14.0	0.0	51.9	9.3%
Singapore	44.6	0.2	0.1	0.1	45.1	99.5%	1.3	0.0	0.9	0.0	2.2	60.1%
Sri Lanka	13.4	-	0.7	0.1	14.2	94.3%	0.5	6.7	3.0	-	10.2	5.3%
Thailand	214.1	0.0	17.2	10.6	241.9	88.5%	14.1	54.9	13.7	0.5	83.3	16.9%
Vietnam	81.6	0.6	14.9	4.6	101.7	80.8%	18.8	53.0	10.9	0.3	83.0	22.7%
Other Asia	15.6	0.0	0.4	48.0	64.0	24.5%	2.3	18.4	5.1	1.9	27.7	8.5%
Asia	2 604.5	41.8	143.6	1 447.7	4 237.6	62.4%	291.7	895.2	272.6	26.0	1 485.4	19.6%
People's Rep. of China	5 067.6	23.5	538.8	34.1	5 664.0	89.9%	610.5	517.5	201.8	3.3	1 333.1	45.8%
Hong Kong, China	40.7	1.0	0.4	0.0	42.2	98.9%	0.8	-	2.1	-	2.8	26.7%
China	5 108.3	24.4	539.2	34.2	5 706.1	90.0%	611.3	517.5	203.8	3.3	1 335.9	45.8%

2005 Greenhouse-gas emissions

million tonnes of CO₂ equivalent using GWP-100

N ₂ O						HFCs	PFCs	SF ₆	Total		
Energy	Industrial processes	Agriculture	Other	Total	Share of energy	Industrial processes			Total	Share of energy	
0.0	-	0.5	0.1	0.6	1.2%	0.3	-	-	8.3	67.9%	Armenia
0.2	-	2.0	0.4	2.6	8.3%	0.1	0.0	-	84.6	88.4%	Azerbaijan
0.5	2.2	8.5	0.5	11.7	4.3%	0.4	0.0	-	88.9	71.4%	Belarus
0.2	-	0.6	0.2	0.9	21.5%	0.0	0.0	0.0	20.5	88.3%	Estonia
0.1	0.7	1.1	0.2	2.0	3.3%	0.0	-	-	10.9	54.1%	Georgia
2.2	-	11.0	4.3	17.6	12.8%	0.3	-	-	239.2	85.7%	Kazakhstan
0.2	-	1.1	0.2	1.5	11.2%	0.0	-	-	10.6	51.5%	Kyrgyzstan
0.1	-	1.0	0.1	1.3	11.6%	0.9	0.0	-	13.0	72.2%	Latvia
0.1	-	2.1	0.2	2.5	5.0%	0.6	0.0	-	22.6	68.2%	Lithuania
0.0	-	0.6	0.2	0.8	5.5%	0.0	-	-	12.4	76.2%	Republic of Moldova
6.8	14.4	33.7	21.2	76.1	8.9%	23.6	26.6	9.5	2 322.0	86.0%	Russian Federation
0.0	-	1.2	0.2	1.4	1.4%	0.0	0.4	-	8.2	35.4%	Tajikistan
0.1	0.6	3.3	0.2	4.3	1.5%	0.1	-	-	74.2	84.3%	Turkmenistan
1.4	9.8	11.9	3.0	26.1	5.4%	0.2	0.2	0.3	441.1	85.2%	Ukraine
0.5	0.1	8.4	1.0	10.0	5.2%	0.6	-	-	161.3	81.6%	Uzbekistan
12.5	27.8	87.1	32.0	159.4	7.8%	27.3	27.2	9.8	3 517.7	84.8%	Former Soviet Union
1.7	0.2	44.4	3.5	49.8	3.5%	0.3	0.1	0.3	319.8	54.5%	Argentina
0.1	-	5.5	9.5	15.1	0.7%	-	-	-	275.4	6.5%	Bolivia
5.6	2.5	158.1	69.8	236.0	2.4%	5.0	5.6	1.2	2 538.8	14.8%	Brazil
0.5	0.9	6.0	0.8	8.1	5.9%	-	0.0	0.0	91.4	74.5%	Chile
0.7	0.3	18.3	2.0	21.3	3.1%	-	0.0	0.1	166.5	42.1%	Colombia
0.1	0.0	1.1	0.1	1.3	4.3%	0.1	-	-	9.9	57.3%	Costa Rica
0.3	0.7	5.0	0.4	6.4	4.6%	0.1	-	-	43.8	65.1%	Cuba
0.2	-	1.7	0.3	2.3	7.8%	-	-	-	27.0	67.1%	Dominican Republic
0.2	-	3.9	0.5	4.6	3.8%	0.1	-	-	50.3	61.6%	Ecuador
0.1	-	1.0	0.2	1.4	8.2%	0.1	-	-	11.1	58.0%	El Salvador
0.3	-	3.1	2.0	5.4	5.5%	0.5	-	-	63.8	19.3%	Guatemala
0.1	-	1.2	0.1	1.4	6.2%	-	-	-	7.7	33.4%	Haiti
0.1	-	2.5	0.3	2.9	3.8%	-	-	-	15.5	47.8%	Honduras
0.1	-	0.4	0.2	0.6	12.1%	0.1	-	-	13.1	82.7%	Jamaica
0.0	-	0.0	0.0	0.1	26.1%	-	-	-	4.4	97.8%	Netherlands Antilles
0.1	-	3.1	0.2	3.3	3.3%	-	-	-	13.7	33.6%	Nicaragua
0.1	-	1.0	0.1	1.2	4.9%	-	-	-	10.5	55.8%	Panama
0.2	-	7.5	1.4	9.1	1.7%	-	-	-	48.5	8.7%	Paraguay
0.2	-	6.2	1.2	7.6	2.9%	0.3	-	-	66.9	47.0%	Peru
0.0	-	0.1	0.1	0.2	11.5%	-	-	-	41.3	94.8%	Trinidad and Tobago
0.1	-	6.8	0.1	7.0	1.4%	0.1	-	-	32.2	17.5%	Uruguay
0.7	0.0	11.2	3.0	14.9	4.8%	2.0	0.3	0.2	265.9	63.9%	Venezuela
0.1	-	2.4	0.7	3.3	3.9%	0.0	0.0	0.0	37.2	46.4%	Other Latin America
11.5	4.5	290.6	96.6	403.2	2.9%	8.5	6.0	1.9	4 154.7	26.7%	Latin America
1.6	-	17.8	2.0	21.4	7.5%	-	-	-	158.4	29.9%	Bangladesh
0.0	-	0.1	0.5	0.6	2.1%	0.3	-	-	24.0	45.5%	Brunei Darussalam
0.2	-	3.8	1.8	5.8	3.5%	-	-	-	60.8	8.1%	Cambodia
1.2	0.7	1.7	1.2	4.8	24.3%	0.1	3.2	3.3	292.7	90.8%	Chinese Taipei
25.6	1.8	156.3	29.3	212.9	12.0%	2.8	1.1	4.6	2 093.3	62.3%	India
4.3	0.2	88.2	30.6	123.3	3.5%	-	0.1	0.9	1 517.1	25.6%	Indonesia
0.5	-	2.1	0.8	3.4	13.2%	2.8	-	-	101.2	84.4%	DPR of Korea
0.6	0.4	9.8	4.3	15.1	4.2%	0.0	0.3	0.6	299.2	64.1%	Malaysia
0.1	-	3.3	0.2	3.5	2.2%	-	-	-	19.2	51.1%	Mongolia
0.8	-	13.3	16.9	30.9	2.6%	-	-	-	504.2	4.8%	Myanmar
0.6	-	3.5	0.5	4.5	13.0%	-	-	-	30.0	16.4%	Nepal
3.2	0.7	19.9	3.0	26.8	12.0%	-	-	0.8	292.1	53.0%	Pakistan
1.2	0.0	9.5	2.3	13.0	8.9%	-	-	0.4	144.8	54.2%	Philippines
0.1	0.7	0.0	0.2	1.1	7.9%	1.4	0.8	0.3	50.9	90.9%	Singapore
0.2	-	1.3	0.5	2.1	12.1%	-	-	-	26.5	53.6%	Sri Lanka
4.4	0.5	14.6	2.8	22.3	19.6%	-	-	1.1	348.6	66.7%	Thailand
1.4	-	19.1	2.5	23.0	6.1%	-	-	-	207.7	49.3%	Vietnam
0.6	-	10.6	2.7	13.8	4.0%	0.1	-	-	105.6	17.6%	Other Asia
46.5	5.0	374.9	101.9	528.3	8.8%	7.5	5.5	12.0	6 276.3	47.6%	Asia
45.0	15.1	347.1	60.0	467.2	9.6%	100.3	10.6	30.5	7 605.7	75.6%	People's Rep. of China
0.2	-	-	0.3	0.4	38.5%	-	-	0.1	45.5	93.6%	Hong Kong, China
45.1	15.1	347.1	60.3	467.6	9.7%	100.3	10.6	30.6	7 651.2	75.7%	China

MULTILINGUAL GLOSSARIES

français

French

Deutsch

German

Indicateurs principaux

CO₂ Méthode sectorielle (Mt de CO₂)
 CO₂ Méthode de référence (Mt de CO₂)

ATEP (PJ)
 ATEP (Mtep)
 PIB (milliards de \$EU 2000)
 PIB PPA (milliards de \$EU 2000)
 Population (millions)

CO₂ / ATEP (t CO₂ par TJ)
 CO₂ / PIB (kg CO₂ par \$EU 2000)
 CO₂ / PIB PPA (kg CO₂ par \$EU 2000)
 CO₂ / Population (t CO₂ par habitant)

Les rapports sont fondés sur la méthode sectorielle.

Hauptkennzahlen

CO₂ Sektorspezifischer Ansatz (MT CO₂)
 CO₂ Referenzansatz (MT CO₂)

PEV (PJ)
 PEV (Mtoe)
 BIP (Mrd. 2000 US\$)
 BIP Kaufkraftparität (Mrd. 2000 US\$)
 Bevölkerung (Mio.)

CO₂ / PEV (t CO₂ pro TJ)
 CO₂ / BIP (kg CO₂ pro 2000 US\$)
 CO₂ / BIP Kaufkraftparität (kg CO₂ pro 2000 US\$)
 t CO₂ pro Kopf

Verhältniszahlen basieren auf dem Sektorspezifischer Ansatz.

Emissions de CO₂ par secteur en 2008

millions de tonnes de CO₂

Méthode sectorielle

Production d'électricité et de chaleur (activité principale)
 Autoproducteurs non spécifiés
 Autres industries de l'énergie
 Industries manufacturières et de construction
 Transport

dont: transport routier

Autres secteurs

dont: résidentiel

Méthode de référence

Ecarts dus aux pertes et/ou aux transformations

Ecarts statistiques

Pour mémoire : soutes maritimes internationales

Pour mémoire : soutes aériennes internationales

La catégorie Autres inclut les déchets industriels et les déchets urbains non renouvelables.

CO₂-Emissionen nach Sektoren (2008)

Mio. Tonnen CO₂

Sektorspezifischer Ansatz

Öffentliche Elektrizitäts- und Wärmeerzeugung
 Nicht zugeordnete Eigenerzeuger
 Andere Energieindustrien
 Verarbeitende Industrie und Baugewerbe
 Verkehr

davon: Straßenverkehr

Andere Sektoren

davon: Haushalte

Referenzansatz

Differenzen infolge von Verlusten und/oder Umwandlung

Stat. Differenzen

Anmerkung: Bunkerung von Brennstoffen durch seegehende Schiffe

Anmerkung: Bunkerung von Brennstoffen im luftverkehr

Andern inklusive Industrieabfälle und nichterneuerbare städtische Abfälle.

italiano**Italian****Japanese****Japanese****Principali indicatori****主 要 指 標**CO₂ Metodo settoriale (Mt di CO₂)CO₂ 排出量 セクター別 アプローチ (二酸化炭素 百万 トン)CO₂ Metodo di base (Mt di CO₂)CO₂ 排出量 レファレンス・アプローチ (二酸化炭素 百万 トン)

ATEP (PJ)

一次エネルギー供 給 (PJ)

ATEP (Mtep)

一次エネルギー供 給 (石油換算 百万 トン)

PIL (miliardi di US\$ 2000)

GDP (10億 米ドル、2000年 価格)

PIL PPA (miliardi di US\$ 2000)

GDP PPP (購買力平価ベースのGDP) (10億 米ドル、2000年 価格)

Popolazione (milioni)

人口 (百万)

CO₂ / ATEP (t di CO₂ per TJ)CO₂ 排出量 / 一次エネルギー 供 給 (CO₂ トン / PJ)CO₂ / PIL (kg di CO₂ per US\$ 2000)CO₂ 排出量 / GDP (CO₂ キログラム / 米ドル、2000年 価格)CO₂ / PIL PPA (kg di CO₂ per US\$ 2000)CO₂ 排出量 / GDP PPP (CO₂ キログラム / 米ドル、2000年 価格)CO₂ / Popolazione (t di CO₂ per abitante)一人当たり CO₂ 排出量 (二酸化炭素 トン / 人)

I rapporti sono basati sul metodo settoriale.

レートはセクター別アプローチを基に算出

Emissioni di CO₂ per settore in 2008**2008年 の 部 門 別 二 酸 化 炭 素 排 出 量***milioni di tonnellate di CO₂*CO₂ 百万 トン**Metodo settoriale****セクター別 アプローチ**

Produzione di elettricità e di calore (attività principale)

電気 ・ 熱供給事業者

Auto-produttori non specificati

自家発電

Altri settori energetici

その他のエネルギー産業

Industrie manifatturiere e della costruzione

製造業・建設業

Settore dei trasporti

運輸業

di cui: trasporti stradali

国内道路運送業

Altri settori

その他

di cui: settore domestico

国内民生・家庭用

Metodo di base**レファレンス ・ アプローチ**

Differenza dovuta alle perdite e/o alle trasformaz.

転換ロス等に起因する誤差

Differenza statistica

統計誤差

Memo: bunkeraggi marittimi internazionali

メモ：国際海運バンカー

Memo: bunkeraggi aerei internazionali

メモ：国際航空バンカー

La categoria Altri comprende rifiuti industriali e rifiuti urbani non rinnovabili.

「その他」は「産業廃棄物」及び「再利用不可の都市廃棄物」を含む

español

Spanish

русский

Russian

Indicadores BásicosCO₂ Metodo Sectorial (Mt de CO₂)CO₂ Metodo Base (Mt de CO₂)

TPES (PJ)

TPES (Mtep)

PIB (billón de 2000 USD)

PIB PPP (billón de 2000 USD)

Población (millones)

CO₂ / TPES (t CO₂ por TJ)CO₂ / PIB (kg CO₂ por 2000 USD)CO₂ / PIB PPP (kg CO₂ por 2000 USD)CO₂ / Población (t CO₂ per capita)

Los ratios estan calculados a partir del metodo sectorial.

Основные показателиCO₂ секторный подход (млнт CO₂)CO₂ системный подход (млнт CO₂)

ОППТЭ (PJ)

ОППТЭ (млн тнэ)

ВВП (миллиардов долларов США 2000 г.)

ВВП ППС (миллиардов долларов США 2000 г.)

Население (миллионов человек)

CO₂/ОППТЭ (т CO₂ на тнэ)CO₂/ВВП (кг CO₂ на доллар США 2000 г.)CO₂/ВВП ППС (кг CO₂ на доллар США 2000 г.)CO₂/Численность населения (тнэ на человека)

коэффициенты основаны на секторном подходе.

Emissiones de CO₂ por Sector en 2008*millón de toneladas de CO₂***Metodo Sectorial**

Producción de electricidad y calor (actividad principal)

Autoprodutores no especificados

Otras Industrias de Energía

Industrias Manufactureras y Construcción

Transporte

del cual: Carretera

Otros sectores

*del cual: Residencial***Metodo Base**

Diferencias por Pérdidas y/o Transformación

*Diferencias estadísticas**Memo: Bunkers de Navegación Internacional**Memo: Bunkers de Aviación Internacional*

Otros incluye residuos industriales y residuos municipales no renovables.

Выбросы CO₂ в 2008 г. по отраслям*миллионов тон CO₂***секторный подход**

Электростанции и теплоцентрали общего пользования

Электростанции и теплоцентрали предприятий

Прочие топливно-энергетические отрасли

Обрабатывающие отрасли промышленности и строительство

Транспорт (включая международную морскую бункеровку)

в том числе : Автомобильный

Прочие отрасли

*в том числе : Жилищно-коммунальное хозяйство***системный подход**

Расхождение от потерь и/или переработки

Статистическое расхождение

*К сведению : Международная морская бункеровка**К сведению : Международная воздушная бункеровка*

Категория Другие включает промышленные отходы и ком.-быт. твердые отходы.

Energy Data Manager / Statistician

Possible Staff Vacancies
International Energy Agency, Paris, France

The IEA

The International Energy Agency, based in Paris, acts as energy policy advisor to 28 member countries in their effort to ensure reliable, affordable and clean energy for their citizens. Founded during the oil crisis of 1973-74, the IEA's initial role was to co-ordinate measures in times of oil supply emergencies. As energy markets have changed, so has the IEA. Its mandate has broadened to incorporate the "Three E's" of balanced energy policy making: energy security, economic development and environmental protection. Current work focuses on climate change policies, market reform, energy technology collaboration and outreach to the rest of the world, especially major consumers and producers of energy like China, India, Russia and the OPEC countries.

The Energy Statistics Division, with a staff of around 30 people, provides a dynamic environment for young people just finishing their studies or with one to two years of work experience.

Job description

The data managers/statisticians compile, verify and disseminate information on all aspects of energy including production, transformation and consumption of all fuels, renewables, the emergency reporting system, energy efficiency indicators, CO₂ emissions, and energy prices and taxes. The data managers are responsible for receiving, reviewing and inputting data submissions from Member countries and other sources into large computerised databases. They check for completeness, correct calculations, internal consistency, accuracy and consistency with definitions. Often this entails proactively investigating and helping to resolve anomalies in collaboration with national administrations of Member and Non-Member countries. The data managers/statisticians also play a key role in helping to design and implement computer macros used in the preparation of their energy statistics publication(s).

Principal Qualifications

- University degree in a topic relevant to energy, computer programming or statistics. We currently have staff with degrees in Mathematics, Statistics, Information Technology, Economics, Engineering, Physics, Chemistry, Environmental Studies, Hydrology, Public Administration and Business.
- Experience in the basic use of databases and computer software. Good computer programming skills in Visual Basic.
- Ability to work accurately, pay attention to detail and work to deadlines. Ability to deal simultaneously with a wide variety of tasks and to organise work efficiently.
- Good communication skills; ability to work well in a team and in a multicultural environment, particularly in liaising with contacts in national administrations and industry.
- Very good knowledge of one of the two official languages of the Organisation (English or French). Knowledge of other languages would be an advantage.
- Some knowledge of energy industry operations and terminology would also be an advantage, but is not required.

Nationals of any OECD Member country are eligible for appointment. Basic salaries start at 3 000 Euros per month. The possibilities for advancement are good for candidates with appropriate qualifications and experience. Tentative enquiries about future vacancies are welcomed from men and women with relevant qualifications and experience. Applications in French or English, accompanied by a curriculum vitae, should be sent to:

Personnel and Finance Division
International Energy Agency
9 rue de la Fédération
75739 Paris Cedex 15, France
Email: recruitment@iea.org

On-Line Data Services

Users can instantly access not only all the data published in this book, but also all the time series used for preparing this publication and all the other statistics publications of the IEA. The data are available on-line, either through annual subscription or pay-per-view access. More information on this service can be found on our website: <http://data.iea.org>

Ten Annual Publications

■ Energy Statistics of OECD Countries, 2010 Edition

No other publication offers such in-depth statistical coverage. It is intended for anyone involved in analytical or policy work related to energy issues. It contains data on energy supply and consumption in original units for coal, oil, natural gas, combustible renewables/wastes and products derived from these primary fuels, as well as for electricity and heat. Complete data are available for 2007 and 2008 and supply estimates are available for the most recent year (*i.e.* 2009). Historical tables summarise data on production, trade and final consumption. Each issue includes definitions of products and flows and explanatory notes on the individual country data.

Published July 2010 - Price €120

■ Energy Balances of OECD Countries, 2010 Edition

A companion volume to *Energy Statistics of OECD Countries*, this publication presents standardised energy balances expressed in million tonnes of oil equivalent. Energy supply and consumption data are divided by main fuel: coal, oil, gas, nuclear, hydro, geothermal/solar, combustible renewables/wastes, electricity and heat. This allows for easy comparison of the contributions each fuel makes to the economy and their interrelationships through the conversion of one fuel to another. All of this is essential for estimating total energy supply, forecasting, energy conservation, and analysing the potential for interfuel substitution. Complete data are available for 2007 and 2008 and supply estimates are available for the most recent year (*i.e.* 2009). Historical tables summarise key energy and economic indicators as well as data on production, trade and final consumption. Each issue includes definitions of products and flows and explanatory notes on the individual country data as well as conversion factors from original units to tonnes of oil equivalent.

Published July 2010 - Price €120

■ Energy Statistics of Non-OECD Countries, 2010 Edition

This publication offers the same in-depth statistical coverage as the homonymous publication covering OECD countries. It includes data in original units for more than 100 individual countries and nine main regions. The consistency of OECD and non-OECD countries' detailed statistics provides an accurate picture of the global energy situation for 2007 and 2008. For a description of the content, please see *Energy Statistics of OECD Countries* above.

Published August 2010 - Price €120

■ **Energy Balances of Non-OECD Countries, 2010 Edition**

A companion volume to the publication *Energy Statistics of Non-OECD Countries*, this publication presents energy balances in million tonnes of oil equivalent and key economic and energy indicators for more than 100 individual countries and nine main regions. It offers the same statistical coverage as the homonymous publication covering OECD countries, and thus provides an accurate picture of the global energy situation for 2007 and 2008. For a description of the content, please see *Energy Balances of OECD Countries* above.

Published August 2010 - Price €120

■ **Electricity Information 2010**

This reference document provides essential statistics on electricity and heat for each OECD member country by bringing together information on production, installed capacity, input energy mix to electricity and heat production, input fuel prices, consumption, end-user electricity prices and electricity trades. The document also presents selected non-OECD country statistics on the main electricity and heat flows. It is an essential document for electricity and heat market and policy analysts.

Published August 2010 - Price €150

■ **Coal Information 2010**

This well-established publication provides detailed information on past and current evolution of the world coal market. It presents country-specific statistics for OECD member countries and selected non-OECD countries on coal production, demand, trade and prices. This publication represents a key reference tool for all those involved in the coal supply or consumption stream, as well as institutions and governments involved in market and policy analysis of the world coal market.

Published August 2010 - Price €165

■ **Natural Gas Information 2010**

A detailed reference work on gas supply and demand, covering not only the OECD countries but also the rest of the world. Contains essential information on LNG and pipeline trade, gas reserves, storage capacity and prices. The main part of the book, however, concentrates on OECD countries, showing a detailed gas supply and demand balance for each individual country and for the three OECD regions: North America, Europe and Asia-Pacific, as well as a breakdown of gas consumption by end-user. Import and export data are reported by source and destination.

Published August 2010 - Price €165

■ **Oil Information 2010**

A comprehensive reference book on current developments in oil supply and demand. The first part of this publication contains key data on world production, trade, prices and consumption of major oil product groups, with time series back to the early 1970s. The second part gives a more detailed and comprehensive picture of oil supply, demand, trade, production and consumption by end-user for each OECD country individually and for the OECD regions. Trade data are reported extensively by origin and destination.

Published August 2010 - Price €165

■ Renewables Information 2010

This reference document brings together in one volume essential statistics on renewables and waste energy sources. It presents a detailed and comprehensive picture of developments for renewable and waste energy sources for each of the OECD member countries, encompassing energy indicators, generating capacity, electricity and heat production from renewable and waste sources, as well as production and consumption of renewable and waste products. It also includes a selection of indicators for non-OECD countries. This report provides a strong foundation for renewables energy policy and market analysis to assess progress towards domestic and international objectives.

Published August 2010 - Price €110

■ CO₂ Emissions from Fuel Combustion, 2010 Edition

In order for nations to tackle the problem of climate change, they need accurate greenhouse gas emissions data. This publication provides a basis for comparative analysis of CO₂ emissions from fossil fuel combustion, a major source of anthropogenic emissions. The data in this book are designed to assist in understanding the evolution of the emissions of CO₂ from 1971 to 2008 for more than 140 countries and regions by sector and by fuel. Emissions were calculated using IEA energy databases and the default methods and emissions factors from the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*.

Published November 2010 - Price €165

Two Quarterlies

■ Oil, Gas, Coal and Electricity, Quarterly Statistics

This publication provides up-to-date, detailed quarterly statistics on oil, coal, natural gas and electricity for the OECD countries. Oil statistics cover production, trade, refinery intake and output, stock changes and consumption for crude oil, NGL and nine selected oil product groups. Statistics for electricity, natural gas and coal show supply and trade. Import and export data are reported by origin and destination. Moreover, oil as well as hard coal and brown coal production are reported on a worldwide basis.

Published Quarterly - Price €120, annual subscription €380

■ Energy Prices and Taxes

This publication responds to the needs of the energy industry and OECD governments for up-to-date information on prices and taxes in national and international energy markets. It contains prices at all market levels for OECD countries and certain non-OECD countries: import prices, industry prices and consumer prices. The statistics cover the main petroleum products, gas, coal and electricity, giving for imported products an average price both for importing country and country of origin. Every issue includes full notes on sources and methods and a description of price mechanisms in each country.

Published Quarterly - Price €120, annual subscription €380

Electronic Editions

■ CD-ROMs and Online Data Services

To complement its publications, the Energy Statistics Division produces CD-ROMs containing the complete databases which are used for preparing the statistics publications. State-of-the-art software allows you to access and manipulate all these data in a very user-friendly manner and includes graphic facilities. These databases are also available on the internet from our online data service.

Annual CD-ROMS / Online Databases

■ Energy Statistics of OECD Countries, 1960-2009	Price: €550 (single user)
■ Energy Balances of OECD Countries, 1960-2009	Price: €550 (single user)
■ Energy Statistics of Non-OECD Countries, 1971-2008	Price: €550 (single user)
■ Energy Balances of Non-OECD Countries, 1971-2008	Price: €550 (single user)
■ <i>Combined subscription of the above four series</i>	<i>Price: €1 400 (single user)</i>
■ Electricity Information 2010	Price: €550 (single user)
■ Coal Information 2010	Price: €550 (single user)
■ Natural Gas Information 2010	Price: €550 (single user)
■ Oil Information 2010	Price: €550 (single user)
■ Renewables Information 2010	Price: €400 (single user)
■ CO ₂ Emissions from Fuel Combustion, 1971-2008	Price: €550 (single user)

Quarterly CD-ROMs / Online Databases

■ Energy Prices and Taxes	Price: (four quarters) €900 (single user)
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A description of these services are available on our website: <http://data.iea.org>

Other Online Services

■ The Monthly Oil Data Service

The IEA Monthly Oil Data Service provides the detailed databases of historical and projected information which is used in preparing the IEA's monthly *Oil Market Report* (OMR). The IEA Monthly Oil Data Service comprises three packages available separately or combined as a subscriber service on the Internet. The data are available at the same time as the official release of the Oil Market Report.

The packages include:

■ Supply, Demand, Balances and Stocks	Price: €6 000 (single user)
■ Trade	Price: €2 000 (single user)
■ Field-by-Field Supply	Price: €3 000 (single user)
■ <i>Complete Service</i>	<i>Price: €9 000 (single user)</i>

A description of this service is available on our website: <http://modsinfo.iea.org>

■ The Monthly Gas Data Service

The service provides monthly natural gas data for OECD countries:

- supply balances in terajoules and cubic metres;
- production, trade, stock changes and levels where available, gross inland deliveries, own use and losses;
- highly detailed trade data with about 50 imports origins and exports destinations;
- LNG trade detail available from January 2002.

The databases cover the time period January 1984 to current month with a time lag of two months for the most recent data.

- Monthly Gas Data Service: Natural Gas Balances & Trade
Historical plus 12 monthly updates

Price: €800 (single user)

For more information consult: **<http://data.iea.org>**

Moreover, the IEA statistics website contains key energy indicators by country, graphs on the world and OECD's energy situation evolution from 1971 to the most recent year available, as well as selected databases for demonstration.

The IEA statistics website can be accessed at www.iea.org/statistics/

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Energy Agency

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